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November 1954

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Lydia J. Roberts

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A Basic Food Pattern for Puerto Rico

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THE purpose of any food guide is to provide a simple pattern that can be used by lay persons to insure an adequate diet without the necessity of calculations. To serve this purpose, the plan should be based on the foods common to the locality and the dietary customs of the people.

After considerable experimentation, the Puerto Rico Nutrition Committee devised a plan which they believe is adapted to Puerto Rico. It was not the product of any one individual or agency, but a cooperative undertaking of all agencies concerned. The first tentative idea for the plan was presented by the writer at the Nutrition Section of the Puerto Rico Public Health Association where it was much discussed and many valuable suggestions given for its improvement. Thereafter, hand-made copies of the guide were used in university classes and in the various agencies for a year or more. Then, when the Nutrition Division of the Department of Health found that funds were available to print the chart, a committee consisting of representatives of all agencies concerned met, considered the plan in every aspect, and finally agreed on the present form. Having thus had a part in preparing it, all agencies have accepted it and are using it as their own.

In devising the chart, it was our desire to emphasize the foods that are now being used in inadequate amounts. It was agreed that there are certain foods which practically all Puerto Ricans are already eating: rice, beans, *viandas* (starchy vegetables, and fruits, such as plantain and green bananas), codfish, lard, sugar, and coffee. There was, therefore, no reason for emphasizing these. They form the basic diet which, although good as far as it goes, needs supplementation to make it adequate.

To illustrate this, we decided to cut a piece from the circle, or "pie," list these foods therein, and label it "Foods That Almost Everyone Eats Now" (*arroz, habichuelas, viandas, bacalao, azucar, manteca, cafe*) (see cut of chart). Then we labeled the rest of the circle "Other Foods That Everyone Should Eat," and divided it into four parts for four groups of foods. These four groups, as seen in the illustration, are: (a) milk (*leche*), (b) meat, fish, fowl, eggs, (*carne, pescado, huevo, garbanzos o gandules*), (c) "yellows and greens" (*amarillas o verdes*), and (d) fresh native fruits, (*frutas*). The term, "yellows," was coined to meet a need. In the United States, reference is made to "green and yellow vegetables"; here we wished to include, as well, the deep yellow-colored fruits, such as papaya and mangoes. It was argued that if "greens" is acceptable to cover a group of foods, then why not "yellows" to cover both vegetables and fruits? Thus, the term was adopted.

USING THE CHART IN TEACHING

This chart is now being used as a basis for nutrition teaching throughout the Island. We have found it most effective to cut the circle up into the five pieces, mount them on flannel, and use them to build up the chart on a flannel board during the talk, or better

Visual teaching with aid of flannel board

still, in a series of lessons (see illustration). On the black flannel board, we mark with chalk a circle of the same size as that of the chart. We suggest to the students that we let the circle represent all the foods we need everyday to supply the materials our bodies need for health.

The first discussion then, centers around the question, "What foods can we be almost certain that almost every Puerto Rican family has everyday?" After some discussion, the list as given above is agreed upon. It is recognized that most families have something more than this; some have a little milk, some have meat, some have other foods. But the ones listed are the only ones that we can depend on practically everybody having every day.

Then comes the question, "Aren't those good foods?" The answer is, "Of course, they are good foods. They furnish some of the things our bodies need." Then we place this basic section—rice, beans, viandas, and so on—on the flannel board in the circle. It is noted that this piece fills part of the circle, but not all of it, thus indicating that these foods furnish some of the things we need, but that they are not enough. We need, in addition, at least four other kinds of foods.

Then the four additional groups are presented in turn and added to the circle and discussed.

Milk

In a class in a school or a group which meets regularly, only one food group is added at a lesson. For example, when milk is added, then discussion follows on:

Why do we need milk?
How much do we need?
How can we get the milk we need?

In a school, these discussions on milk take several sessions, and graphic methods of teaching them effectively have been developed. The question of *How can we get the milk we need?* raises the problem of the cost of various kinds of milk and stresses the value of dry skim milk as an economy. A dry skim milk demonstration is given, or a movie of the demonstration shown. In rural areas, the goat as a source of milk is stressed, and lessons are given on the care and rearing of goats.

In similar manner, the other groups are added to the circle one by one and the same questions raised:

Why do we need them?
How much do we need?
How can we get them?

Protein Foods

For the protein foods, emphasis is given to the many sources available, especially those not always used as much as they might be; fish, sea foods in general, land crabs, goats, and rabbits. The rabbit as a source of lean meat is stressed especially for families that have too little space and too little money to keep larger animals. The high quality of the protein of *gandules* (pigeon peas) is also taught, and their wider use urged. Puerto Ricans like *gandules* and use them in season in small amounts with their rice. But red kidney beans are the favorite and the most widely used. Demonstrations have been worked out showing how much superior *gandules* are to red kidney beans and the desirability of growing and using them oftener and in larger amounts. Since their protein is practically the equivalent of that of meat, it is suggested that *gandules* be used liberally on days when the family has neither eggs nor meat.

Yellows and Greens

For "yellows and greens," the *calabaza* (a Puerto Rican variety of squash) and the yellow sweet potato are chosen as the line of least resistance for obtaining greater use of this food group. *Calabaza* is liked and commonly used in small amounts in the beans. So the program is aimed at (a) teaching the superior value of *calabaza* as compared with the most commonly-used vegetables, *chayote*, eggplant, beets; (b) showing the quantities that should be used daily to supply the essential vitamin A, and ways of using it to include these amounts; and (c) promoting the growing of *calabaza* in patios or fields. A filmstrip "Puerto Rico's Golden Treasure" has been prepared and two hundred copies are being used over the Island to further this program.

While emphasis is being put on *calabaza*, the use of the yellow sweet potato (*batata mameya*) and greens is also being promoted. The white sweet potato (*batata blanca*) is the favored variety, and at the time of the 1943 nutrition workshop was the only one found in the markets. Today the yellow variety is being widely cultivated; it is available in city mar-

kets; and it is also being canned for shipment to the States. As is commonly the case, city people and the better-educated have been the most ready to adopt the better variety. Country people who raise it are slow to accept it themselves. But even they are gradually coming to use it, at least to some extent.

To develop a liking for greens in Puerto Rico will be a more up-hill task. At present they are practically not used at all by the large majority, especially the ones that need them most. But their value is being taught and ways of using them demonstrated, and some small progress even in this program is evident, although again largely among the better-educated groups.

Ascorbic Acid Fruits

For the fourth section, the points of attack are the richness of Puerto Rican fruits in ascorbic acid and their great superiority over imported fruits, both fresh and canned. For some strange reason, the highest prestige value in Puerto Rico is accorded to canned imported fruits. Canned pears and peaches, or their juices, and canned fruit cocktail in particular are prized much more highly than the far superior native fruits. Thus campaigns are being waged throughout the Island to teach the people the folly of this and to instill in them a higher respect for their own vitamin-rich foods. Charts showing the ascorbic acid content of the native fruits have been made, and their relative cheapness as a source of this vitamin is pointed out. A "vitamin C calendar" for Puerto Rico has been prepared to show the many sources of this vitamin that are available the year around.

When the series of lessons is completed, the heading "Protective Foods for Puerto Rico" is placed at the top of the flannel board, and the directions, "Include at least one food from each group every day" is placed below. The chart is then complete.

As already indicated, this chart is being used as a basis for nutrition teaching all over the Island—by home economics teachers in the schools; by extension workers in clubs of adults and children; by nutritionists and nurses in clinics and other welfare groups; and by other workers.

OTHER EDUCATIONAL HELPS

New ways of driving home the essential facts and motivating people to improve their diets are constantly being worked out to insure continued interest in the basic program. Of special help has been a booklet, *Alimentos Para Su Familia* ("Foods for Your Family"), which was printed by the Division of Community Education in the Department of Education for distribution in its Island-wide program of adult education, especially in remote rural areas. This booklet follows the pattern and theme of the chart, explaining in simple terms the importance of the different foods and how to obtain them by home production of foods.

A movie prepared by the Division, *Un Pedacito de Tierra*, which shows how a family improved its living by raising food on a "little piece of land," is being shown by forty community organizers in all parts of the Island.

Food habits change slowly, and this program to promote the greater use of the protective foods is far from having effected wide-spread changes. Nevertheless, there are indications that it is producing some tangible improvement in dietary habits among the groups being reached by it.

APPLICATION TO OTHER AREAS

This basic food pattern for Puerto Rico is not offered as one suitable for other localities unless it happens to fit their situations, as it does with some modifications in many countries. For example, we have now had five groups of students from eighteen Latin American and Caribbean countries in special three- to six-month courses which have included a total of about one hundred students. These students have found that the general plan of this chart suits their countries also, except that the "Foods That Practically Everyone Eats Now" differ. Some countries need to include in their charts *tortillas* or *arepas* (food made from cornmeal), rather than rice, *agua dulce* (a crude brown sugar dissolved in hot water and used for a drink), or other foods. But nutritionally, these basic diets are about the same as the Puerto Rican in that they consist largely of carbohydrate and fat. The same four groups of protective foods are those that need emphasis. These students have, therefore, made similar charts with such changes as make them suited to their countries both in the basic group of "Foods Everyone Eats Now" and in the kinds of foods listed in the other four sections.

The ways by which these foods may be obtained in their countries may also differ considerably from those in Puerto Rico. In some countries where there is more land, the milk problem can be solved by some plan to provide the family cow; in others, dry skim milk or milch goats may be the solution. In some, the protein problem may be met through wider use of fish. The *how* of the matter must be worked out to fit local needs and resources.

MAKING A PLAN FOOL PROOF

A word is in order about the need for careful checking of a food plan to see if it is foolproof. To test such a guide, one should imagine herself to be a homemaker with no knowledge of nutrition. She should then do literally what the rule says, but take the poorest choice one might innocently make and still comply with the rule. For example, in many such food plans, one group is "milk and milk products," which often includes cheese, cottage cheese, and sometimes even butter. The homemaker might meet the rule by taking a serving of any one of these,

such as a piece of cheese; yet, by so doing, she would fail to get the riboflavin and other water-soluble vitamins milk contains. We believe that milk should stand alone in a group by itself, so that no other food can take its place.

Similar poor choices can be made in other groups. One such pattern which recently came to the writer's attention contains only three groups: (a) milk and all protein foods; (b) cereals, fats, bread, and so on; and (d) fruits and vegetables. One could comply with the rule by choosing from group 1, an egg; from group 2, a potato; and from group 3, prunes. Such a plan is, of course, of no value in helping to insure an adequate diet.

It is true that no simple food guide can safeguard choices so as to insure a fully optimal diet, but it can be so formulated as to insure that, if the directions are followed, the diet will at least contain some milk, another protein food, and a source each of vitamin A and ascorbic acid. The teaching which should always accompany the chart provides opportunity to show how much of the specific foods are needed and choices that are possible among the groups.

SUMMARY

The purpose in presenting the foregoing, has been not primarily to familarize readers with Puerto Rico's food pattern, but, through it, to illustrate what the writer believes are important points in the construction and use of such food guides, namely: (a) Such patterns should be based on the needs of the specific locality as indicated by a knowledge of the dietary habits, the foods available, and the deficiencies that need correction. A ready-made plan developed elsewhere should be used only if it meets these requirements or can be made to do so by some modifications. (b) The plan should be developed by democratic procedure; all agencies that expect to use it should have a "say" in its construction. (c) It should be tested to see whether, if followed literally, it would safeguard the diet in important essentials. If these conditions are met, then such a guide can well be used as the basis for the nutrition program in the locality.

Taste-Testing

The same food actually tastes different to different people, according to Dr. Arthur L. Fox, Colgate-Palmolive Company, Jersey City, New Jersey. Speaking before a symposium on "The Chemical Aspects of Flavor and Odor Perception" at the recent American Chemical Society meeting, Dr. Fox said that preliminary studies indicate there are at least ten distinctly different classes of taste reactors among the general public, that they can be identified by a simple chemical test, and that each class has distinct food preferences.

This chemical difference among people—and not environmental conditions, psychologic reasons, acquired tastes, or heredity—probably is the reason why junior can't stand spinach and sauerkraut while his brother gobbles them up. If the evidence is substantiated by further work, Dr. Fox predicts a day when Army recruits will be grouped according to their chemical taste-test reactions, so that "benevolent mess sergeants can plan more pleasing menus for them."

Dr. Fox reported that the trouble with most references to taste is that they include not only true taste but also aroma, or flavor. In addition, most foods usually stimulate more than one true taste at the same time. To avert this difficulty, he used two chemicals that are odorless but which produce pure, true taste sensations. Phenyl thiocarbamide tastes exceedingly bitter to some people and causes no taste sensation at all in others. The second, sodium benzoate, is described by different people as sweet, sour, bitter, salty, or tasteless.

By testing first with phenyl thiocarbamide, Dr. Fox divided random subjects into two groups: "bitter" and "tasteless." Then, with sodium benzoate, he was able to divide each group into five sub-groups: "bitter-salty," "tasteless-salty," "bitter-sweet," "tasteless-sweet," and so on.

Dr. Fox theorized that if pure taste is a determining factor in food preferences, differences should be found in food likes and dislikes among the classes as determined by the chemicals alone. To prove his point, all subjects, without reference to their taste-test classification, were then asked to express their like or dislike for nine foods, ranging from sauerkraut to buttermilk to turnips to strong cheese, in order to establish a normal baseline. When the subjects' food likes and dislikes were examined according to their taste-test classification, each group varied sharply from the over-all normal on at least some foods, thus proving the theory. For example, the sauerkraut preferences of the entire group showed that about 20 per cent liked it and 56 per cent didn't, with the rest indifferent. But, in the "bitter-salty" group, only 17.3 per cent liked it, while 82.4 per cent didn't.

The ten taste-test groups include four large ones that seem to cover 76 per cent of all people, Dr. Fox noted. While panels of expert food taste-testers should include a representative of each group, special weight should be given to the opinions of experts from the four major groups. Thus companies bringing out a new food or beverage should make certain it is acceptable to these four groups.

Nutrition and Care of Young Children in Peru

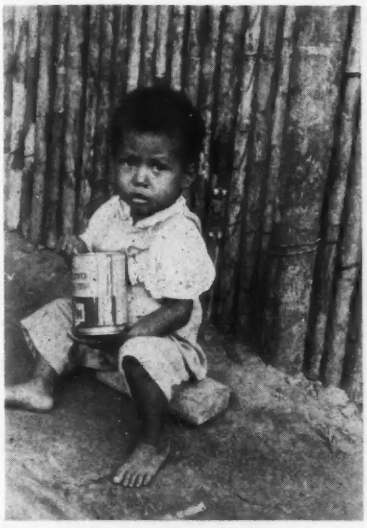
III. Yurimaguas, A Jungle Town[1]

RUTH L. HUENEMANN, D.Sc.,[2] and CARLOS COLLAZOS CH., M.D., M.P.H.[3]

With the technical assistance of Rosa Benites, Yolanda Bravo de Rueda, Aurora Castellanos, Aida Dieseldorff, and Irma Moscoso[4,5]

CONCURRENTLY with the first of two recently reported family dietary surveys in the jungle town of Yurimaguas, Peru (1), a study was made of the nutrition and care of young children. The eighteen children under three years old in the thirty-eight households that made up the sample for the family dietary survey constituted the sample for this child study.

Methods of gathering and analyzing data have been previously described (2). Field workers visited each child's home daily for seven days to obtain a quantitative record of food intake, a record of the child's activity, information about the mother's diet during pregnancy and lactation, the child's diet and care up to the time of the survey, and the mother's attitudes and beliefs about these matters. Food intake data were calculated in terms of specific nutrients and compared with the Recommended Dietary Allowances of the National Research Council (3) with certain adjustments for age and size of each child (2) and for an assumed mean annual environmental temperature of 25°C. (77°F). Physical examinations of all children were made, and



Yurimaguas child

certain anthropometric measurements, viz., weight, length or height, and circumference of head, thorax, and abdomen, were done and compared with Stuart's percentile ratings (4) and with the measurements reported by Pretto (5) and Muñoz (6). Dention was compared roughly with Stuart's chart (4).

The town of Yurimaguas and the way of life of its people have been previously described (1).

Survey Findings

DIETARY INTAKE AND FEEDING PRACTICES

Food Intake of Infants from Birth to One Year of Age. Of the eighteen children in the study, six were under one year of age. All six were breast fed, and three—ages two, three, and ten months, respectively—were given additional food. The two-month-old girl was given mashed ripe banana once daily and on the last day of the survey because she was growing continuously less satisfied with the scanty supply of breast milk, the mother began giving her twice daily a bottle of diluted Nestlé's condensed milk. The three-month-old girl was given cooked ripe banana and four or five bottle feedings daily of a cooked solution of banana flour, white sugar, water, and sometimes a tablespoon of Nestlé's condensed milk. The mother, an alert, intelligent young woman, said that she augmented the breast feedings in this way because she had read that babies need more than breast milk. The ten-month-old girl received, in addition to eight or ten breast feedings, from one to three daily feedings of "family food," such as fried fish; cooked green bananas; ripe

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[5] The authors wish to acknowledge the interviewing help given by the staff of the Yurimaguas hospital.

bananas; rice; bread; and soup of meat broth, rice, yuca, and cabbage —all in small portions.

In giving a history of their children's food intake from birth on, four mothers reported that their babies had been given sugar water, anis water, *alucema* (an herb), and camomile tea before their first breast feeding, and one had been given ripe banana. Two had been given salad oil as a laxative. Ten of the eighteen babies had been put to the breast on the second day after birth, and most of the others were breast-fed some time during the first day. Not uncommonly, a newborn baby was permitted to feed at the breast of a lactating friend until such time as his own mother's milk came in.

Once lactation was established, most babies received only breast milk until they were six months of age or older. Four mothers, however, said that they began feeding "solid" foods before their babies were six months old. In all cases, ripe banana was the first supplementary food. Other food given to babies under six months of age, but not as first foods, were bread soup, banana soup, and cooked green bananas. Most mothers introduced solid foods some time between the sixth and twelfth month—usually bananas first, either ripe, raw, or cooked green, and then soup, rice, bread, fish, yuca pudding, and Klim (powdered milk). It would seem that almost any of the family food that was soft and easily swallowed was considered appropriate supplementary food for children approaching one year of age.

Yurimaguas street

Food Intake of Children One to Three Years Old. The four children in the sample in their second year of life, ranging in age from fifteen to twenty months, as well as the eight in their third year, were all completely weaned and eating family fare. Table 1 lists the foods in the diets of all the weaned and partially breast-fed children. It will be noted that bananas; rice; beans; small portions of fish; sugar (used in tea); and a variety of soups usually made with meat, fish, or mushroom broth, rice or noodles, and small amounts of yuca and other vegetables, were commonly used, while numerous other foods, including meat, eggs, and sweets were used less frequently. Only four of the twelve children received milk, either fresh, condensed, or powdered, in amounts equivalent to an average of 20 to 50 cc. fresh milk per day. While variations did occur, the following meal pattern might be considered typical:

Breakfast

Fried fish, dried or fresh
Cooked or roasted green banana
Tea with unrefined sugar
Bread occasionally

Lunch

Soup occasionally
Rice
Beans
Cooked or roasted green banana

Supper

Left-over rice and beans
Small amounts of fish or meat occasionally
Cooked green or ripe raw banana
Tea with unrefined sugar

All children had three regular meals and, in addition, three children routinely had from one to five "snacks" during the day, and all but four sometimes had between-meal food. Oranges, bread, fish, soda crackers, tea with sugar, sugar cane, bananas, *ponche* (egg, sugar, flavor-

ing, and water well mixed), *alfenique* (a confection), *helados* (popsicles), and banana-flour puddings were used for between-meal eating.

Nutrient Content of Dietary Intakes. The nutritive value of supplementary feedings of partially breast-fed children and of the entire diet of post-weaning infants was calculated as previously described (2). Any nutrient intake under 70 per cent of the adjusted National Research Council's recommended allowance was arbitrarily called a dietary "lack." A listing of probable "lacks" is given for each child in Table 2, and a summary of the nutritive value of the diets of weaned children is shown in Table 3.

Supplementary feedings of the three partially breast-fed children were high in carbohydrate and low in fat and animal protein compared to isocaloric amounts of breast milk of average composition (7).

Calcium, riboflavin, thiamine, and protein were the outstanding dietary lacks of the weaned children, as indicated in Table 3 both by the mean intakes of these nutrients and by the high proportion of subjects who failed to receive 70 per cent of the recommended allowances. On the other hand, no subject "lacked" ascorbic acid and only one "lacked" vitamin A; mean intakes of these two nutrients definitely exceeded the recommended allowance.

No child was given a vitamin D concentrate. While the vitamin D content of breast milk was not determined, it would seem that it might have been relatively high since mothers spent much time out of doors in the course of their activities. As indicated in Table 2, the children varied in their average daily exposure to sunlight; five, according to their activity records, were never in the sunlight. It was apparent from conversation with adults and observation of child care practices that some parents tried to shield their children from the sunlight because they feared it might harm them. No signs of clinical rickets were observed.

Feeding Schedules. All the children under one year were apparently fed on demand, and none was on a regular schedule. The number of feedings ranged from four to seven daily in the case of the one-month-old girl, to eight to ten breast feedings and one to three feedings of

TABLE 1

Foods other than breast feedings consumed by two or more of fourteen Yurimaguas children during survey week

FOOD	CHILDREN CONSUMING SPECIFIED FOOD	RANGE IN AGE OF CHILDREN	TOTAL SERVINGS CONSUMED	RANGE OF SERVING SIZE
		months		*gm.*
MILK AND ITS PRODUCTS				
Milk, fresh	2	18–26	4	30–200
Milk, condensed	3	2–36	16	12–40
EGGS				
Egg, fried	2	24–30	3	½ of 1 egg
MEATS				
Beef (cooked)	5	15–36	10	15–30
Beef liver	2	20–30	2	20–30
Pork, fried	3	19–36	5	5–60
Cracklings	2	18–27	2	12–15
Pork sausage, smoked, dried	2	30–36	2	10–20
FISH				
Fish, dried	2	15–30	5	10–80
Fish, roasted	3	15–33	21	10–25
Fish, dried, cooked	2	27–30	5	5–10
Fish, fried	6	10–36	20	6–30
Fish, cooked	3	15–31	40	10–100
LEGUMES				
Dried beans, cooked	6	10–36	28	5–100
VEGETABLES				
Yuca, cooked	4	15–31	23	8–30
FRUITS				
Bananas, cooked green	5	10–36	107	60–120
Bananas, roasted green	5	10–18	30	15–360
Bananas, cooked ripe	3	3–24	7	30–120
Bananas, raw ripe	7	2–36	47	24–120
Oranges, raw	6	15–36	19	46–185
Orange juice	2	24–26	2	25–200
Mandarins	3	15–36	11	75–300
Avocado	4	19–30	10	30–66
Papaya	2	30–36	2	140–350
CEREAL PRODUCTS				
Rice, cooked	5	10–36	49	30–90
Bread, white	5	10–36	70	6–50
Bizcocho (a sweet bread)	4	18–30	6	10–80
Mote de maiz (hominy)	2	31–33	2	4–15
SUGAR AND SWEETS				
Chancaca (unrefined sugar)	3	15–33	71	10–18
Candy	4	24–36	7	5–10
Sugar cane	2	24–30	4	1 stalk
Soda water	2	24–30	2	100
Sugar, white	2	30–31	4	5–15
FATS				
Lard	2	15–19	7	2–4
BEVERAGES				
Tea	6	15–33	53	100–200
Coffee	3	15–33	22	100–200
Ponche (milkless eggnog)	3	24–36	3	50–200
Orange leaf tea	2	19–31	3	200
MIXED DISHES				
Soup (13 varieties)*	9	10–36	40	70–200
Main dishes				
Noodles with meat or chicken sauce	2	19–24	3	30–100
Rice with beans	5	19–36	41	30–200
Stew—pork, beef, chicken, or fish	3	18–30	18	15–100
Tamales	2	24–30	4	50–100
Puddings†	8	15–36	39	150–200
MISCELLANEOUS				
Fresh cocoanut	2	24–30	3	4–20

* Soups were made with (or without) meat, fowl, or fish stock; rice, noodles, yuca, potatoes, bananas, or oatmeal; small amounts of green vegetables, herbs, onion; and eggs occasionally.

† Puddings were made of yuca, rice, or banana paste sweetened with sugar. No milk was used.

TABLE 2—*Summary of findings for Yurimaguas children*

CHILD	SEX	AGE IN MONTHS	FAMILY DIETARY LACKS*	PRENATAL PERIOD		CHILD'S PAST DIET		CHILD'S PRESENT DIET		AVERAGE DAILY EXPOSURE TO SUN	WEIGHT		HEIGHT		ABDOMINAL CIRCUMFERENCE		CLINICAL SIGNS POSSIBLY RELATED TO NUTRITIVE DEFICIENCIES	GENERAL CONDITION
				Probable dietary lacks*	Course of pregnancy†	Type of feeding	Probable lacks*	Type	Lacks* shown by diet record	hr.	kg.	Percentile‡	cm.	Percentile‡	cm.	Percentile‡		
S.P.	F	11 days	none	none; same as family	uneventful	breast only	none	breast only	none	0.0	—	—	—	—	34.0	—	inflamed palpebral conjunctiva; reddened lips and tongue; desquamation of skin of face, thorax, arms; folliculitis of skin of face	data incomplete
Q.T.	M	1	Cal., pro., Ca, B_1, ribo.	unknown	anemic	breast only	none	breast only	none	0.0	3.90	25	56	90–97	32.0	—	fissured implantation line of right ear; folliculitis and desquamation of skin of legs; telangiectasis of face	thin; condition fair
E.Z.	F	2	Ca, B_1, ribo., C	same as family dietary	uneventful	breast + condensed milk + ripe banana	none	breast + condensed milk + banana	C	0.6	5.00	50–75	—	—	36.0	—	xerosis of skin of face	excellent
S.R.	F	3	Ca, ribo.	none after first months	sick in bed for 2 mo.; given B Complex and Ca shots	breast only to 1 mo.; then ripe banana & formula of banana flour & sugar added	none	breast + banana + formula	Ca, C	1.3	5.50	25–50	57.0	10	39.0	50–75	xerosis of skin of face; alopecia of areas of scalp	excellent
V.R.	F	5	Ca	same as family dietary	headache + debility	breast only	none	breast only	none	0.0	7.20	75	69.0	97+	41.0	50–75	pale, palpebral conjunctiva; reddened line of implantation of ear; depigmented areas on thorax	excellent (unless anemic)
J.P.	F	10	Cal., pro., Ca, B_1, ribo.	same as family dietary	uneventful	Breast only to 1 mo.; cooked ripe banana, 2 mo.; cooked green bananas, 3 mo.; then rice & bread	none	breast + family food	pro., Ca, Fe, B_1, niacin	2.1	5.50	−0	66.5	−0	39.0	3–25	xerosis of skin of thorax	thin; condition fair
M.N.	F	15	Cal., pro., Ca, B_1, ribo., niacin	same as family dietary	uneventful	breast to 1 yr.; added banana + fish at 10 mo.; then family food	none	family food	pro., Ca, B_1, ribo., niacin	0.5	8.00	−0	69.5	−0	45.5	50–75	inflamed palpebral conjunctiva, plus pus secretion; creased upper lip; crusty nasal orifice; red line of implantation of ear; depigmented areas on thorax and limbs	good to excellent
A.B.	F	18	Cal., pro., Ca, B_1, ribo.	none	pain in legs and shoulders	breast to 18 mo.; then condensed milk, egg, rice, banana	cal. + other nutrients after 1 yr.	family food	cal., pro., Ca, Fe, A, B_1, ribo., niacin	0.0	8.70	3	70.0	−0	43.0 §	10–25	reddening of naso-labial fold; depigmented areas on arm	good to excellent
E.Z.	F	19	Ca	Ca	uneventful	breast only to 1 yr.; then rice, bananas, and soup; family food at 14 mo.	pro., Ca after latter part of 1st yr.	family food	Ca	1.8	9.10	3–10	79.0	3–25	48.0 §	79–97	pale lips; hypotrophic papillae at tip of tongue; reddened line of implantation of right ear; depigmented areas on thorax and limbs	good; signs suggestive of possible deficiencies
S.C.	F	20	Cal., pro., Ca, B_1, ribo.	none	very tired; vomiting for 3 mo.	breast only to 6 mo. when bread & rice were added; weaned at 10 mo., & given 3 Tbsp. Klim daily & family food	pro., Ca after 10 mo.	family food	Ca	2.9	8.50	−0	74.0	−0	43.0	3–25	dark spots of bulbar conjunctiva; reddened nasal orifice; fissured, reddened line of implantation of ear; xerosis of skin of thorax and limbs	small; condition excellent
Z.M.	F	24	Ca, ribo.	same as family dietary	uneventful	breast to 1 yr.; orange & tomato juice & ripe banana with salad oil after 1 mo.; rice & soup at 6 mo.; family food at 12 mo.	none	family food	Ca, ribo.	2.1	10.50	3–10	82.0	10	45.5	25–50	xerosis of skin of thorax; folliculitis of skin of lips	excellent
J.P.	M	27	None	unknown	unknown	breast to 10 mo.; then soup, yuca, rice; at 1 yr., family food	pro., Ca after 10 mo.	family food	pro., Ca, B_1, ribo., niacin	0.4	11.90	3–10	76.0	−0	52.0	100+	data missing	data missing
W.T.	M	29	Cal., Ca, B_1, ribo.	same as family dietary	pain in legs last month	breast to 15 mo.; added bananas & yuca at 8 mo.	none	family food	Ca, B_1, ribo.	1.6	10.50	−0	81.0	−0	45.5	25–50	dark spots of bulbar conjunctiva; xerosis of skin of arms and legs; depigmented areas on thorax	small; condition excellent
E.C.	F	31	Cal., B_1, ribo.	same as family dietary	uneventful	breast to 16 mo.; banana added at 1 mo.; bread & coffee at 3rd mo.; soup at 5th mo.; family food at 1 yr.	none	family food	pro., Ca, B_1, ribo.	4.8	10.00	−0	75.0	−0	50.0	75–97	dark spots of bulbar conjunctiva; crustiness of nasal orifice; xerosis of skin of arms; depigmented areas on thorax and legs	good to excellent
P.R.	M	31	Ca, B_1, ribo.	same as family dietary	swollen legs	breast to 1 yr. supplemented by Klim since 8 days; bananas since birth; bread & tea at 8 mo.; fish and family food at 1 yr.	cal. + other nutrients	family food	Ca, ribo.	0.0	8.10	−0	76.0	−0	45.5	25	folliculitis of skin of face; depigmented areas on legs	small; thin; condition fair
A.L.	M	32	unknown	unknown	uneventful	breast and banana since birth; soup and Klim at 8 mo.; rice and egg at 1 yr.; family food at 1½ yr.	pro., Ca, B_1, ribo.	family food	pro., Ca, Fe, B_1, ribo.	0.6	11.00	3	83.0	−10	50.0	75–97	inflamed fissure of external angle to palpebral conjunctiva; dark spots of bulbar conjunctiva; xerosis of skin and folliculitis on thorax and arms; striation of mucous membrane of lips; tongue had hypotrophic papillae; depigmentation on thorax	fair to good; signs suggestive of possible deficiencies
R.S.	M	33	Cal., Ca, B_1, ribo., C	unknown	stomach ache at work	breast to 20 mo., with additions of banana, rice, soup, fish, & other family food	none	family food	pro., Ca, B_1, ribo.	0.2	9.70	−0	75.0	−0	45.5	10–25	crustiness of nasal orifice; fissured, reddened line of implantation of ear with exudate; xerosis of skin of thorax and limbs	small; condition good to excellent
M.R.	M	36	Ca	unknown	unknown	unknown	unknown	family food	Ca, ribo.	1.6	11.50	−0	85.0	−0	49.5	50–75	pale palpebral conjunct. va; red- line of implantation of left ear	pale; condition good

* Less than 70 per cent of recommended allowances.
† Evaluations are the mothers' own.
‡ Stuart's tables (4).
§ Measurements taken with child crying.

"family food," in the case of the ten-month-old girl. The weaned children ate three meals daily on regular schedule with their families, and eight of the twelve had, in addition, occasional snacks.

Weaning Practices. As previously stated, all children in the study fifteen months of age and over were completely weaned. That weaning was accomplished at various ages was indicated by mothers' answers to the question of when and how they weaned their babies. Twelve mothers stated specific ages, ranging from nine to twenty months, with one year mentioned three times. In most cases the process appeared to have been a gradual one of substituting other foods for breast feedings. Four mothers said that they hid the breast from the baby or applied a bitter substance to it when the baby cried to be nursed.

Foods Considered Good and Bad for Babies. When mothers were asked what foods were good for babies, eight of the seventeen who answered the question mentioned milk, two of the five specifying condensed milk, and two breast milk "because it is natural." Ripe bananas, either cooked, raw in the form of soup, or as banana flour, were mentioned by ten mothers. Four mothers said rice was good.

The reverse question, "What foods are bad for babies?" brought the answer "None" from four mothers and "I don't know" from two. Six said that beans were bad, and four said the same of pork "because it causes diarrhea." Condensed and fresh milk, fish, sweets, and *chicha* (corn beer) were mentioned once each as bad for the same reason. Diarrhea thus appeared to be the criterion for judging whether a food was bad.

Medicines, Herbs, and Other Remedies. Twelve of the eighteen in the study had a minor illness some time during the survey week: a cough, "fever," cold, diarrhea, earache, "bronchitis," loose bowels, boils, "stomach ache," lack of appetite, "gripe," sore eyes, or a combination of these ailments. Home remedies or medication from the local hospital dispensary were used, and included "Mejoral" (tablets similar to Anacin), "fever pills," almond oil for cough, fruit salts, and sulfathiazole. Two mothers washed their babies' heads with *aguardiente* (a local brandy) when they had a fever, and one used camphor and *aguardiente* packs for her baby's "running nose." The child with boils was treated with numerous poultices and lotions: yuca mashed with *aguardiente*, dried mallow and pepper leaves, mashed bananas, and belladonna lotion. He was not permitted to eat bread "because it constipates him." Several children were not given their daily bath when they had a cold. Two children received purgatives for intestinal worms during the survey week and felt ill as a result. Their mothers said they gave them this treatment regularly every two or three months.

When mothers were questioned about medicines, herbs, and other remedies for babies, the fourteen who offered suggestions mentioned both home remedies and drugs. Two said that oregano (an herb) tea was good for diarrhea "caused by cold" and that starch and lemon was good for diarrhea "caused by heat." Salad oil and almond oil were recommended as laxatives. Three mentioned camomile tea and one, mint tea as cures for stomach ache. The following were suggested as fever cures: lemon juice with watermelon seeds, mallow with almond oil, "Mejoral," and bathing in cassia leaf infusion. Various infusions were suggested for colds. "Mejoral," sulfathiazole, and milk of magnesia were mentioned several times as good general remedies.

TABLE 3

Summary of dietary findings for twelve Yurimaguas children, ages one to three years*

NUTRIENT	INTAKE	RECOMMENDED ALLOWANCE	MEAN INTAKE AS % OF ALLOWANCE	% OF SUBJECTS "LACKING" NUTRIENT
Calories	797 ± 57	890	90	8
Protein				
Animal (gm.)	9.9 ± 4.3	—	—	—
Total (gm.)	20.0 ± 6.1	32.2	62	50
Calcium (mg.)	228 ± 75	784	29	100
Iron (mg.)	4.9 ± 1.3	5.5	89	17
Vitamin A (I.U.)	3155 ± 63	2000	158	8
Thiamine (mg.)	0.33 ± 0.12	0.445	74	58
Riboflavin (mg.)	0.43 ± 0.15	0.807	53	83
Niacin (mg.)	4.05 ± 1.42	4.45	91	25
Ascorbic acid (mg.)	59.7 ± 33.8	27.4	218	0

* Average age: 26¼ ± 6.86 months; average weight: 9.8 ± 1.3 kg.

OTHER AREAS OF CHILD CARE

Sleep. Average daily number of hours of sleep of the eighteen children in the study ranged from 11 to 17. While the four children under five months of age slept more hours than the other fourteen, there was no further obvious relationship between age and the daily amount of sleep. Twelve children averaged fewer than the number of hours given as "usual" by Mitchell-Nelson (8). Two of the children, ages one month and two months, had their own hammocks and one, age three months, had her own little bed. All the others shared beds with siblings or parents.

Bathing. From the appearance of the children, one would say that cleanliness standards in general were high. Activity records showed that most children had a daily bath except when they had a cold. In lieu of baths on the days they were not feeling well, the three-month-old baby was rubbed with Johnson's baby oil and dusted with talcum, and the ten-month-old girl was given an alcohol rub.

The usual time for baby's first bath was the second day. Eleven of the eighteen babies were reported to have had their first bath in warm water and soap at that time.

Clothing. Children were lightly dressed in cotton garments and generally wore no shoes. Girls

Yurimaguas homes

usually wore a short-sleeved dress and panties or diapers, and boys wore short-sleeved shirts and short trousers or diapers. Thus arms and legs were usually bare.

Toilet Training. Fifteen mothers discussed the matter of toilet training. Four said that they did not train their children but "let them learn by themselves," while the remaining mothers said that they "talked to their children" and "put them on the pot," or "taught them words." Two mothers mentioned taking their children to the toilet "always at the same time" and waking them from their sleep for this purpose. Apparently no mother used punitive measures. Ages stated for training ranged from twelve months to two years.

Immunization. Three babies had been vaccinated against smallpox, two had been given yellow fever immunization, ten had never been immunized, and for three no such information was obtained.

Persons Responsible for Child Care. As was done in the coastal survey previously reported (9), a record was kept of the number of each child's daytime hours supervised by the mother, the father, and others, and questions were asked to learn who were regarded as authorities on child care and feeding. Eleven of the eighteen children were under their mother's surveillance 50 per cent or more of the time. Six of the remaining seven were supervised mostly by persons other than the father, i.e., by neighbors and siblings, while not under their mother's care. Only one father supervised his son for as much as 40 per cent of the child's day, and this was due to the fact that he carried on his business of tailoring in the living room of his home. Other fathers were occupied in the *chacra* (field) or at their places of business during most of the children's daytime hours, so that they spent relatively little time with their children. "Supervision" often meant little more than being within easily accessible distance from the child, for mothers, neighbors, and siblings appeared to pay little attention to the babies for hours at a time. In the simply, sparsely-furnished, stoveless homes in which most of the families lived, there were, indeed, not many physical hazards for children.

In answer to the question, "Who in the community can give advice on the care and feeding of children?" three mothers said, "Nobody." Three others mentioned their own mothers, one a neighbor, one her own father, and one the baby's father. The Catholic Sisters who operated a small dispensary at the otherwised unused Hospital Santa Gema were considered authorities by two mothers, the doctors and other personnel of the Ministry of Health Hospital administered by SCISP[6] by three, and the midwife by one. One mother said that she went to the hospital for help and also used a book entitled *The Medical Counselor of the Home.* It was apparent from these answers that the Ministry Hospital with its clinics was not yet generally considered a source of help in keeping children well.

PHYSICAL FINDINGS

Measurements of height, weight, and circumference of abdomen; a summary of clinical signs possibly related to nutritive deficiencies; and a rating of general physical condition are given in Table 2. By Stuart's percentile ratings (4) for height and weight, all children from the age of ten months upward were small. Eight of the twelve for whom measurements were available were too small to be compared with their own age groups and so were compared in height and weight with the Peruvian coastal children measured by Pretto (5). The disproportionately large abdomens of some of the children might possibly have been an indication of anemia. It was suggested that an excessive degree of parasitic infestation *per se* might have been responsible.[7] Three children were thin; none was obese.

[6] Servicio Cooperativo Interamericano de Salud Publica, the Peruvian-American cooperative health program of the Institute of Inter-American Affairs.

[7] Dr. Carlos Collazos Ch.

No child was entirely free of signs possibly related to nutritional deficiency. Thirteen had xerosis, folliculitis, or desquamation of the skin sometimes associated with vitamin A deficiency, and eight had depigmented areas of the skin found sometimes in B-complex deficiencies (10). Four had dark spots of the bulbar conjunctiva, and eight had fissuring of the line of implantation of the ear, both sometimes found with deficiency states (10). Two showed hypotrophic tongue papillae, two had a reddened striation of the lips, one showed a redness at the naso-labial fold—all occasionally associated with deficiencies of the B-complex. Inflammation of the palpebral conjunctiva occurred in two children. Three had a pallor of the mucous membrane suggestive of anemia.

On the basis of anthropometric measurements and all physical findings, an attempt was made to rate the general physical condition of each child.[8] As indicated in Table 2, six children were rated "excellent"; four, "good to excellent"; two, "good"; one, "fair to good"; and three, "fair." (For two children, data were incomplete.) In four cases, however, ratings of "excellent," "good," and "fair to good" were tentative, depending on further development of signs suggestive of specific deficiencies and anemia.

Although examinations for parasites were not made for these infants, it was apparent from a small sample in the family study and from hospital records that the incidence of intestinal parasitism was extremely high (1). It would seem likely that most, if not all of the children in the study, might well have been infested by one or more types of parasite. Accompanying anemia, commonly found among the adolescent children and adult women, as previously reported (1), probably also affected the infants.

A finding not recorded at the time of the physical examination but perhaps nonetheless significant was the observation of field workers that many of the children appeared listless.

[8] The authors are indebted to Dr. Samuel Dooley, Harvard School of Public Health, for these evaluations.

FAMILY DIETARIES

Family dietaries are described in a previous publication (1); "lacks" in the diets of families with children in this study are summarized in Table 2. As in the case of the children's diets, calcium, riboflavin, and thiamine were outstanding "lacks" for the families. Protein was a somewhat less frequent "lack" than in the children's diets, and calories more frequent.

PRENATAL PERIOD

Eight of the sixteen mothers who discussed their pregnancies reported

Taking bananas home

ailments of various types (Table 2), the severity of which could not be ascertained. Dietary "lacks" appeared in most cases to have been the same as those of the family.

INTERRELATIONSHIPS OF FINDINGS

When dietary, general care, and physical findings for each child were viewed together, as in Table 2, the

Washday in Yurimaguas

following observations became apparent:

(a) Not all breast-fed children were rated in "excellent" physical condition. Including those partly breast-fed, three of the six were rated "excellent"; one appeared anemic but otherwise "excellent"; two were rated "fair"; and for one, data were incomplete.

(b) Of the twelve children rated "good," "good to excellent," or "excellent," eight had two or more dietary "lacks" and five had three or more. On the other hand, of the four children rated "fair" or "fair to good," one had no dietary lacks, one had two, and the other two had five. Looking at past diets, one notices that three of the "good—good to excellent" group had dietary "lacks" and two of the "fair—fair to good" group "lacked" certain nutrients. Thus, on the basis of number of dietary "lacks," there was no clear-cut relationship between diet and the rating of general physical condition.

(c) Likewise, clinical signs sometimes associated with specific deficiencies could not be correlated with dietary intake, e.g., no relationship could be established between dyspigmentation of the skin, dark spots on the bulbar conjunctiva, fissuring of the line of implantation of the ear, or inflammation of the

palpebral conjunctiva and intake of riboflavin or other members of the B-complex. While thirteen children had signs sometimes associated with vitamin A deficiency (10), no child "lacked" dietary vitamin A. Of the three children with pale mucous membranes, one had no dietary "lacks," one "lacked" only calcium, and one "lacked" calcium and riboflavin.

Of the two children with perhaps the most signs suggestive of possible nutritive deficiency (*E. Z.* and *A. L.*), the first "lacked" only calcium in her diet and the second had many dietary "lacks" in both his present and past diet.

(d) The lack of relationship between dietary findings and physical signs and conditions suggests the need for more thorough study of factors affecting physical status that were not included in this study, e.g., degree of parasitic infestation and occurrence of malaria.

(e) All children on family food had dietary "lacks."

(f) When one compares the diets of the twelve children on only family food with those of their families, one finds that two had the same number and kind of "lacks"; five had fewer "lacks" than their families; four had more; and for one, family dietary data were not available.

(g) Since all children had been bathed, no relationship could be established between xerosis or folliculitis and lack of bathing.

(h) Three of the four women with no "probable lacks" in their prenatal diets had children rated "excellent" or "good to excellent," and for the fourth child, no rating was made. On the other hand, two of the four prenatal diets of the mothers of "fair" or "fair to good" children were "lacking" in a number of nutrients, and, for two, this information was not known.

(i) There was no obvious relationship in the limited sample between the course of pregnancy (as described by the mothers), regularity of feeding schedules, exposure to sunlight, bathing, sleep, and the physical condition of the children.

Discussion of Findings and Their Application

Physical findings and dietary data viewed as a whole both suggest need for nutritional improvement. While the small size of the children as judged by Stuart's percentiles might well have been due partly to nationality and racial differences between Peruvian children and North Americans, comparison with average weights of 1100 preschool Lima children measured by Pretto and Muñoz (5, 6) also showed these jungle children to be small. They were, in fact, smaller than the coastal children of San Nicolás and Carquin described previously (9), who had the same national and racial background. When the weights of coastal children were compared with the averages of Pretto and Muñoz (5, 6), thirteen were found to be over these averages for their own age groups compared to twenty-four who fell below, while of the jungle children only three were over compared to fourteen under these averages. Thus it seems doubtful that the children in this study were achieving their full hereditary growth potential. The high incidence of signs suggestive of nutritional deficiency, admittedly not specific, tends to substantiate the view that the diets of the children in many instances failed to meet their nutritional needs.

Indirect evidence of parasitic infestation suggests that the dietary "lacks" reported on the basis of comparison with allowances for normal children might actually indicate more serious deficiency. It is possible, as pointed out in the report of the family survey to which this study was an accompaniment (1), that just as iron needs are known to be increased by hookworm infection (11), requirements for other nutrients might also be elevated.

That dietary findings did not in many instances correlate with physical status was rather to have been expected, not only because of possible parasitism and other conditions not investigated, such as malaria, but also because of factors mentioned in a previous report (8) as applying even in studies dealing with "normal" subjects. These include adaptability, interrelationships of nutrients, lack of specificity of physical signs, the smallness of the sample and shortness of the sampling period, the inability to measure degrees of health, and others, including the form in which certain nutrients are consumed. In this study, for example, the occurrence of almost all vitamin A in the diets of weaned children in the form of carotene might have resulted in poor utilization and consequent development of signs suggestive of A deficiency in such a large proportion of the children. This possibility seems all the more likely since older children also showed these signs (1). Until such uncertainties can be eliminated by further research and study, findings of surveys such as this must be viewed as preliminary, although nonetheless indicative of probable nutritional needs and as such useful guides for program planning.

The outstanding dietary inadequacies for wholly and partially weaned children were calcium, riboflavin, protein, and thiamine. Three of these—calcium, riboflavin, and thiamine—were also the most marked inadequacies in the family dietaries (1). Measures suggested for improving family diets in regard to these nutrients (1) would apply also to the diet of the post-weaning infant, providing they be accompanied by an educational program emphasizing the nutritional needs of the young child. That the child's diet does not always parallel that of the family nutritionally was shown by the difference between the family's and the child's diet in the number and kind of dietary "lacks." Certain foods—dried beans, for example—that might increase the family's thiamine intake were considered by some mothers to be bad for babies. Objections that they "cause diarrhea" might be overcome by demonstrations that straining them and keeping them sanitary make them safe food for babies. As Foster has pointed out (12), the average Latin American is prag-

matic by nature and will change beliefs and practices if changed ways can be shown to be beneficial.

Since protein "lack" was more common in the diets of post-weaning infants than in family diets, an educational program on the nutritional needs of the young child seems indicated. Too often the baby was given largely carbohydrate-rich foods with only very small amounts of fish or beans. In some families, eggs or canned milk might be made available for the child if his need for them were appreciated. It would seem that all educational programs regarding child feeding should be directed at the entire community, since many people other than mothers participated in child care and feeding. It is to be hoped that all such teaching would be flexible and done with patient understanding so as not to jeopardize the present relaxed attitude toward child care matters.

The obvious need for parasite control and the difficulties involved have already been discussed (1), as has the possible need for increased iron intake, either through diet or medication, even though present diets met the recommended allowances for this nutrient.

Enrichment of rice with calcium, iron, B vitamins, and perhaps other nutrients might benefit the diets of children and their families providing the dietary intake of protein and calories could be improved at the same time. Experimental nutrition has often shown the ease with which rapidly growing animals develop deficiencies of various kinds compared to those whose growth is slow, so that when a diet is low in one nutrient it may actually be beneficial to have other nutrients low also. Also, enrichment would involve many practical difficulties because of the many small mills.

Summary

The nutrition and care of eighteen children under three years of age was studied at the time of a family nutritional survey in the jungle town of Yurimaguas, Peru. All children under one year of age were wholly or partly breast-fed, while all children in their second and third year were completely weaned and subsisting on family fare. Although mashed ripe bananas were sometimes given to a child at an earlier age, the usual period for the introduction of solid foods into the child's diet was between the sixth and twelfth month. Dietary records of weaned children showed calcium, riboflavin, thiamine, and protein to be the chief nutritional lacks. No child was entirely free of signs possibly related to nutritional deficiency. All children from the age of ten months upward were small compared to Stuart's percentile ratings for height and weight (4), and many were below the average height and weight of Peruvian coastal children of similar racial and nationality background (5, 6). The disproportionately large abdomens of the children and findings of the family survey suggested that parasitic infestation was common.

As judged by observation and activity records, child care was not a matter of rigid procedures.

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Vitamins in Tropical Climates

Supplemental thiamine not only allows optimal nutrition and performance in tropical heat, but it also increases an individual's ability to withstand what would otherwise be killing heat. At present there is no adequate explanation why higher dietary thiamine concentrations are needed when cellular combustion rates have been lowered as a result of difficulty in body heat dissipation. However, such is the case and supplemental thiamine should be provided under such circumstances. The same seems likely to prove true with choline, although the evidence is not so complete.—*C. A. Mills, writing in* Nutrition under Climatic Stress, *published by the National Academy of Sciences—National Research Council, May, 1954.*

Observations on Food Acceptance During Mental Illness

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FOOD IS one therapy in a mental hospital that is available to all patients three times a day. As such, it becomes an important instrument for the treatment and rehabilitation of the mentally ill. Mealtime experiences, when skillfully planned by the dietitian and medical staff, can play an important role. This was clearly shown in a series of food acceptance observations made on approximately two hundred chronically ill male patients participating in an extensive psychiatric research project at the Stockton (California) State Hospital.

This research project, known as the Stockton Pilot Study, extended over an eighteen-month period[1] and was designed to determine the staffing and program required to care for and treat chronically ill mental patients adequately.

Although it is generally known that certain types of staffing and program are required for treating the acutely ill, little is known about such requirements for the chronic, long-hospitalized patient. Through the information obtained from the Pilot Study, it was hoped that more effective, yet realistic plans for treatment could be developed, with the eventual result that more of these patients could recover and be returned to their homes. Food was, therefore, one of several treatment techniques studied in connection with the patients' care and treatment.

It is important to understand that the food acceptance observations reported here were intended to answer specific questions for the medical staff. For example, were patients eating their food? If not, why? Were chronic patients capable of selecting their own food in a cafeteria? What is the average minimum plate waste, then, that can safely be maintained for patients of this kind? How could meals be made more acceptable to the patients? These and similar other questions formed the basis for our observations. After the data were analyzed statistically, it was felt they had broad implications and would be of interest to others in related fields.

[1] From July 1950 to January 1952.

PILOT STUDY ORGANIZATION

Before discussing food acceptance, it is necessary to provide additional information on the over-all plan of Pilot Study and its food program.

The Pilot Study was, in effect, a program of intensive therapy. From the beginning, varied, palatable menus with special emphasis on attractive food preparation and service were provided. Raw food costs were increased over the general hospital diet from 59 to 76 cents a day and a total of twelve employees were assigned full time to the three dining rooms in which these patients were fed. This provided two shifts a day plus relief, and a ratio of one employee to seventeen patients per shift. In addition to serving food and performing other typical related duties, these employees also collected data, kept records, and made written reports on food service activities.

Four hundred male schizophrenic patients between the ages of twenty and sixty years participated in the Pilot Study. All had been hospitalized for one year or more and had not responded to routine treatment. Two hundred of these patients were assigned at random to the control group and 200 to the experimental group. Control patients were distributed throughout the various wards of the hospital, and their identity was kept secret, thus making it impossible to study their food habits. However, throughout the eighteen months of the study, the 200 experimental patients were segregated from the rest of the hospital and were housed in two cottages of 100 patients each. These were identified as Cottages 9 and 11. Each had its own dining room and serving pantry. All hot food and most of the desserts were prepared in the main kitchen several blocks away and delivered by motorized truck. Salads were usually prepared in the serving pantries just before mealtime.

Cottage 11 had one dining room equipped for cafeteria service. Cottage 9, which was a two-story building, had a dining room on each floor. These

were identified as 9A and 9B; both used family-style table service.

With the exception of these different methods of serving, all other aspects of the food program, such as the menu, size of servings, and method of cooking, were the same for all experimental patients. They were served on plastic compartment trays; knives, forks, and spoons were used, and dispensers for paper napkins, sugar, salt, and pepper were placed on each table for four place settings. Serving hours were 7:30 a.m., 11:30 a.m., and 5:30 p.m.; a bedtime snack was provided at 9:30 p.m.

The patients received a food ration known as the "treatment ration," which was greater than the general ration. Approximately 7 per cent of the patients in the hospital are generally on this enriched ration by medical prescription. The treatment ration provides: 3305 calories and 111 gm. protein. The raw food cost per day was 76 cents in comparison with 59 cents for the general diet.

At the beginning of the Pilot Study, food acceptance was measured by collecting and weighing the drained, edible plate waste in each dining room. However, as the study progressed, increased interest was shown by the patients and employees in the food program. During the last four months, observations were made on methods of serving, individual food preferences, and the ability of patients to select their own food in a cafeteria.

PLATE WASTE

The drained edible plate waste was collected and weighed by dining room employees at the end of each meal; from these weights, the average daily plate waste per person was computed. Figure 1 shows progressive monthly changes in plate waste for each of the three dining rooms. All dining rooms showed a steady increase from November 1950 to October 16, 1951. Cottage 11, which had cafeteria service, had consistently less waste during the entire study. Since this was the only known difference in service, it strongly suggests that the cafeteria method was more acceptable to the patients than the family style.

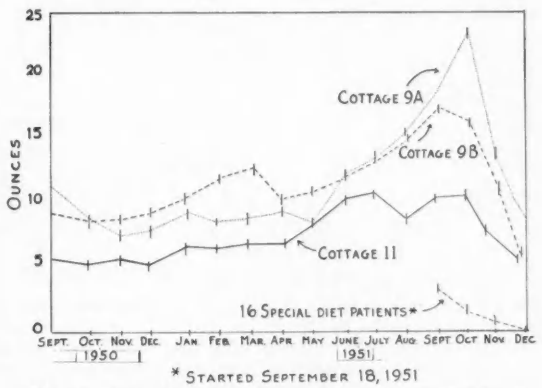

FIG. 1. *Average daily edible plate waste per patient by month in three experimental groups, for sixteen months, September 1950 through December 1951.*

The highest plate waste of the study occurred on October 16, 1951, when 9A reported 24 oz. per person. Although waste in the other two dining rooms did not reach this figure, it was above the starting figure. At this time staff conferences were held, and out of the discussion there came what seemed to be the only logical explanation. After months of intensive therapy, some patients were in better mental health. They were more aware of their surroundings and more particular about what they ate. Bedtime snacks were discontinued, but plate waste was not reduced. Acting on this assumption, a concentrated effort was made to improve the food service even further. This was effected as follows:

(a) *Attitudes.* Although the attitudes of cooks and dining room employees were basically good, a certain degree of laxity and disinterest had developed. It was necessary to re-impress these employees with their responsibilities as members of the therapeutic team. This was accomplished through joint conferences with the medical staff and participation in certain group therapy activities on the wards. Cooks and dining room employees would often be asked, along with doctors, nurses, and psychiatric technicians, to assist patients with reading exercises or other specially assigned activities. This was of inestimable value in integrating food department employees into the total treatment program.

(b) *Food Preparation.* Ways were found to offer greater variety and palatability in food without increasing the raw food cost. Grilled and deep-fried foods were made possible by adding another cook's helper in the main kitchen. Special emphasis was placed on garnishes, colorful salads, and desserts.

(c) *Serving Techniques.* Serving methods came under scrutiny, and two major changes were made. On November 17, dining room 9B was converted

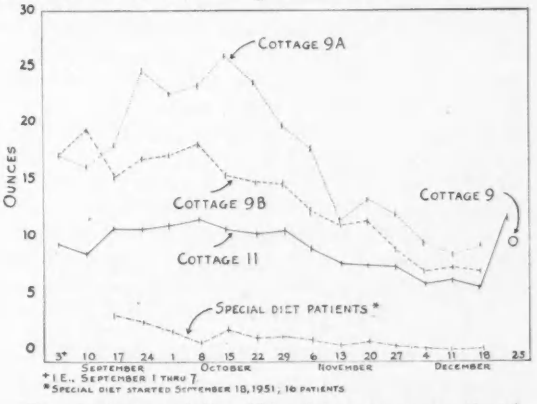

FIG. 2. *Average daily edible plate waste per patient by week in experimental group for seventeen weeks, September through December 21, 1951, after improved methods were adopted.*

from family style to cafeteria service to see if this would reduce plate waste to a level comparable with the dining room for Cottage 11 where cafeteria service had always been used. On December 8, a selective menu was offered for the first time in the Cottage 11 cafeteria, and this was continued until the study terminated on December 21.

Figure 2 shows the continued reduction in plate waste that occurred in each dining room after these changes were made.

It is interesting to note by December 1, after cafeteria service was started on 9B, plate waste dropped until it had reached almost the same level as that which Cottage 11 cafeteria had experienced before the selective menu was introduced.

After the selective menu was started in the Cottage 11 cafeteria, plate waste dropped to a daily average of 6 oz. per person—the lowest recorded during the study. During this period, body weights were closely checked: there was no significant relationship to the body weight changes and plate waste.

On September 18, 1951, sixteen patients were placed on special diets, and their plate waste was collected and weighed separately. Their plate waste dropped during this period of greatest food service improvement.

The food study terminated December 21, and at this time patients were returned to their former general ration at a cost of 59 cents a day. As shown in Figure 2, plate waste immediately increased. This rejection of the general diet further points up the awareness most patients had of their food.

At no time was it possible to eliminate plate waste completely. As previously mentioned, a daily average of 6 oz. per person was the lowest obtained, and this was in the Cottage 11 cafeteria when the selective menu was offered.

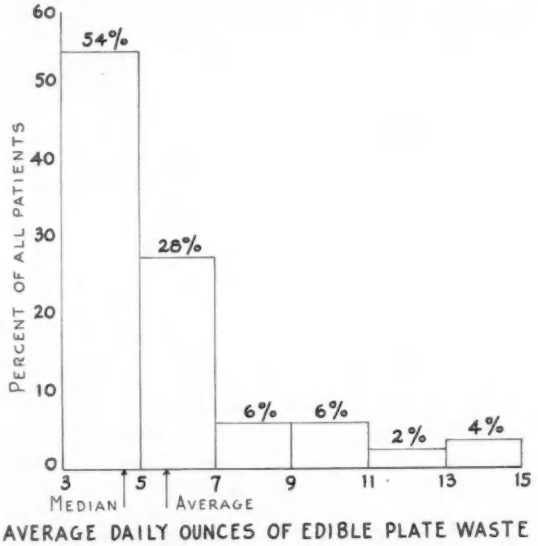

FIG. 3. *Distribution of plate waste according to patients, December 8 through 19, 1951. Data collected only on 83 patients in Cottage 11. Fifty per cent of patients averaged 4.6 oz. or less of plate waste; 75 per cent, 6.4 oz. or less; and 69 per cent, less than the average plate waste of 5.5 oz.*

During the last several months of the study, individual plate waste records were kept for all patients. Figures 3 and 4 show how waste was distributed among the patients during a period when a low average of 5.5 oz. per day was reported (*Fig.* 3) and when a high average of 13 oz. per day was reported (*Fig.* 4).

Referring to Figure 3, note that during this period of low waste, 69 per cent of the patients had less than the average plate waste of 5.5 oz. This shows that for the patients of Cottage 11 during a period of their low average waste, a high percentage (69 per cent) of the patients had very little waste and a low percentage (31 per cent) had high waste. Most of those having high waste were delusional and had obsessions about food. For example, one man thought all white bread was poison and refused to eat it; another always left half of every meal for his imaginary wife.

Figure 4 shows how waste was distributed for patients of Cottage 9B, when waste was generally higher than that of Cottage 11, as shown in Figure 3. A high average of 13 oz. per person per day was reported. Note that here only 55 per cent of the patients fell below the average waste, while 45 per cent were above. These data show just the reverse of Figure 3, namely, during a period of high average waste (13 oz.), a lower percentage of the patients had low waste and a higher percentage had high waste. Patients who were disturbed and delusional were also in this group reporting high waste; however, it is apparent that numerous others who were

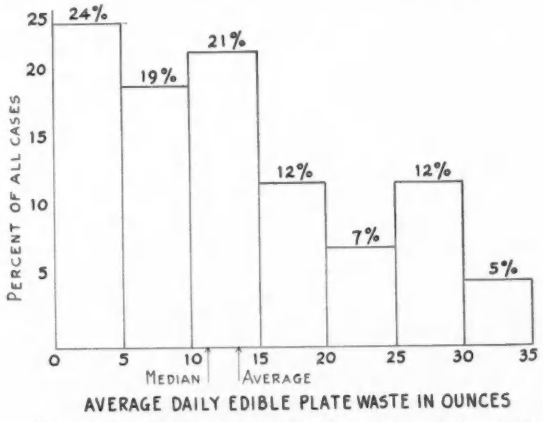

FIG. 4. *Distribution of patients' average daily edible plate waste, October 22 through November 23, 1951 for 42 patients in Cottage 9B, where family-style service was maintained. Average of all patients was 13 oz.; median was 10.8 oz. Fifty per cent of all patients averaged less than 10.9 oz. per day; 75 per cent, less than 17.6 oz.; and 55 per cent, fell below the 13-oz. daily average.*

capable of eating, refused to do so because they did not like the food and found meals uninteresting. It was this latter group that produced this excessive waste. This indicates further that many chronically ill patients are very food conscious.

FOOD SELECTION

During the two-week period from December 8 to December 21, 1951, the seventy-eight patients remaining in Cottage 11 were given a selective cafeteria menu. The selective menu was the same as that served in the other two dining rooms with the exception of the added items necessary to provide a choice. Two choices were offered at each meal. For example, at breakfast there was a choice between two fruits and hot or cold cereal; at lunch, a choice of two entrées and two vegetables; and at dinner, a choice of two salads and two desserts. Patients who could not speak were encouraged to make selections by pointing to sample servings displayed on the counter. When a patient could not choose, he was given a predetermined item, so that his meal would be the same as that served in 9A and 9B.

Patients showed a strong preference for the following foods: roast beef, barbecued frankfurters, meat loaf, green beans, corn, squash, tossed green salad, fresh fruit, and gelatin. Less popular foods were Welsh rarebit, shrimp, roast veal, asparagus, beets, cabbage, fresh tomatoes, and head lettuce. During this two-week period, there were 433 choices for hot cooked cereal and 456 choices for cold cereal, indicating the preferences for cereal were quite evenly divided.

Are chronically ill mental patients capable of selecting their own food? Figure 5 shows that many of them are. Twenty-two of the seventy-eight were able to make selections 100 per cent of the time, while only five patients made selections less than 20 per cent of the time. Although a slight relationship was found between the patients' psychiatric condition and their ability to select food, a large number, regardless of their psychiatric condition, were found capable of expressing their choices a high percentage of the time.

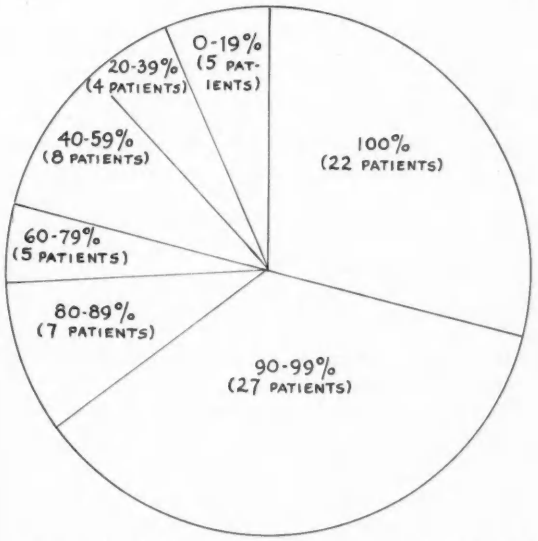

FIG. 5. *Ability of patients in Cottage 11 to make food selections, December 8 to 21, 1951.*

REACTIONS TO FOOD

No report of the Pilot Study would be complete without mentioning the reactions of individual patients to their food. This was perhaps one of the most interesting and enlightening parts of the observations. It is unfortunate that personal responses, such as interest, satisfaction, and appreciation, cannot be measured statistically, for it was in this way that many patients demonstrated food acceptability most clearly.

On one occasion, several patients who had been hospitalized a long time were overheard talking together. They said they felt sure they were getting well now because the doctors had enough confidence in them to let them select their own food. To others, the selection of food was a great adventure, and they would often ask for small servings of everything offered "just to see how it tastes."

One patient who had not spoken for months came into the cafeteria one morning and quite clearly asked for hot cereal. He seemed startled and pleased at the sound of his own voice. From then on, it was much easier for him to speak, not only in the dining room, but also to the doctors and nurses on the ward.

Another patient had not spoken for several years. On his birthday he was given an attractively decorated cake with "Happy Birthday, Joe" written on it and several of his friends on the ward were asked to enjoy it at a special table with him. After the cake was cut and Joe had eaten his piece, he looked up and said quite distinctly, "That's good."

As the study progressed, there was a noticeable trend toward socialization at mealtime. At the beginning, many patients ate with their hands and were aware of no one else in the dining room. By the end of the study, practically all were using knives, forks, spoons, and napkins. The patients took a longer time to eat their meals and seemed to enjoy visiting with others at their table. It was interesting to note that once this trend toward greater socialization started, plate waste began to drop.

SUMMARY AND CONCLUSIONS

The summary and conclusions of the food acceptance observations at the Stockton Pilot Study are as follows:

At the beginning of the study when interest was

high, food appeared to be well accepted and plate waste was low. Within a few months, plate waste began to rise steadily until in October, 1951, one dining room reported the peak of 24 oz. per person per day. As a result of renewed interest in the food program and a concentrated effort to improve the food, it was possible in about two months to reduce plate waste to the lowest point of the study.

The dining room having cafeteria service had consistently less waste than those having "family-style" table service. This trend continued throughout the study, indicating that cafeteria service is more acceptable than family style.

During the period of highest food acceptance, there was still an irreducible minimum plate waste of 6 oz. average per person per day. The majority of this waste came from about 20 per cent of the patients, many of whom were disturbed and delusional.

Within the limits of this study, it appears that chronically ill mental patients are very responsive to food and will clearly demonstrate preferences when given the opportunity. These experiences further indicate that cafeteria service with a selective menu will provide the patient with meals that are most acceptable to him. It is important that meals be well prepared and attractively served, and it must be emphasized that this can only be done when adequate funds are available for food, personnel, and equipment.

The Stockton Pilot Study has shown that food, as it affects the physical, emotional, and social well-being of the individual, can be an important therapy in the rehabilitation of the mentally ill. Recognizing these therapeutic potentialities, the dietitian is challenged to find new and more effective ways in which the food program can meet the special needs of mental patients.

Recommendations to Reduce Trichinosis

When the 1954 National Conference on Trichinosis met in Chicago, a number of recommendations were made to further trichinosis control.

In the field of public health, the Conference recommended that public health organizations should encourage, support, and cooperate with animal disease control agencies to reduce and eradicate the disease. Feeding of raw animal offal to swine should be prohibited by law, and all garbage fed to hogs should be heat treated. States should be encouraged to adopt uniform garbage-cooking regulations, and the interstate quarantine regulations relating to raw garbage should be enforced.

Better reporting of cases of human trichinosis and a repeat random survey by the U. S. Public Health Service, similar to surveys done between 1936 and 1941, were also recommended.

Further research is needed to learn (a) the effect of ionizing irradiation of trichinae in hog carcasses, (b) specific diagnostic tests for trichinosis, (c) alternate methods of garbage disposal, and (d) actual cost of gamma irradiation of pork to kill trichinae. Standardization of garbage processing methods, including development of equipment with time and temperature studies, is also needed.

Educational measures were recognized as an essential part of a trichinosis control program, and a number of different approaches were suggested. A general education program was recommended to reach the general population, including school children, homemakers, men's and women's organizations, women's publications, magazines, trade publications, church groups, restaurant operators, cooks and other food handlers, restaurant systems, and cooking schools.

Literature for use by various groups should be prepared. An instruction book on proper cooking of pork was suggested which could be issued with licenses to food handlers and restaurants, with distribution also by food inspectors of local health department.

Local health officers must be informed regarding their responsibilities in control of trichinosis, and county and Extension workers are urged to intensify their efforts to persuade individual farmers to exclude raw pork scraps and offal from their feed for swine.

Other recommendations in the area of legal matters included the enforcement (which at present is inadequate) of laws now existing in all but seven states providing for the cooking of garbage. In other states, adoption of similar legislation is urged. All states should have laws requiring meat processors to carry out proper procedures in the manufacture of pork products customarily eaten without cooking. Legislation is also needed by the states and/or municipalities defining "hamburger," "ground beef," and similar comminuted meat products to prohibit the inclusion of pork. Grinding of pork in the same equipment used for comminuting beef, lamb, or other meats should also be prohibited by law.

Retail stores selling meat or meat products should be required by law to post one or more signs reading, "Cook pork thoroughly."

Dietary Treatment of Tuberculosis—A Retrospect[1]

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TUBERCULOSIS, a malady which man has been combating since before the Hindu Vedas were written, still remains a challenge to civilization. When the disease existed on the plains of the Ganges in prehistoric times, the ancients passed its description by word of mouth through generations (1). Moorman (2) comments: "Disregarding certain mythological references, including the vague, symptomatic pictures found in the songs of Orpheus, and Homeric poems, the serious study of history justifies the belief that tuberculosis may have been the first born mother of pestilence and disease." Exhumed skeletons of prehistoric periods bear marks of tuberculosis; thus we see that before the time of recorded history, tuberculosis left an ineradicable record of its ravages.

The Code of Hammurabi written 2000 B.C. indicates a knowledge of the disease. In Deuteronomy 28:22, dating from 700 B.C., we find: "The Lord shall smite thee with a consumption, and a fever, and with an inflammation." During the fifth and sixth centuries B.C., the Jews of Assyria and Babylonia still thought tuberculosis was caused by the wrath of God. Tuberculosis was prevalent in Egypt when Rome flourished. Egyptian statuettes, engravings, paintings on stone, and script on papyri describe consumptives. Mummies have evidence of tuberculosis of the bones and joints (1).

The name "phthisis," which means wasting, was given to the disease by the Greek physician, Hippocrates (460–370 B.C.). The name was used in the early literature and is still included in modern medical dictionaries (3).

DIETARY TREATMENT OF TUBERCULOSIS

Diet has always played an important part in the treatment of tuberculosis. Primitive man thought the flesh of crow, the burnt lungs of vultures mixed with blossoms and wine, boiled crocodile (1), and powdered crab shells (4) were potent in giving relief to the disease. The Chinese used lungs of hog, the ashes of hair, and red plants or leaves for hemoptysis (1).

In addition to diet, other methods of treatment have been used frequently. Bleeding and blistering of the skin were used during the Dark and Middle Ages. At the same time, wholesale quackery developed. Drug peddlers, herb gatherers, salve healers, and vendors attempted to heal disease. Because of the healing touch recorded in the New Testament, Christian kings thought they had this power.

In 1692, Sydenham introduced horseback riding, thinking that the agitating of the thorax along with fresh air was beneficial (4). Other methods in use at the time but which have a more modern "sound" are heliotherapy and change of climate and altitude, including sea voyages.

The Greeks and Persians probably were among the earliest advocates of the milk diet which has been used in treating tuberculosis. Human and asses' milk were the principle dietary treatments throughout the Renaissance and continued to be used during the early part of the nineteenth century (4). Aretaeus, the Cappidocian, a Greek from Asia Minor, gave a classic description of the advanced phthisical patient in 30 A.D. For treatment, he recommended fresh milk and asses' milk, even bringing the ass or woman into the room with the patient to insure its freshness. Brown (4), in describing treatment of tuberculosis in England and France in 1712, refers to the use of milk of an ass which had been given forty unctions of mercury. Such treatment of the animal was thought to improve the milk.

As late as 1844, Brown (4) wrote that, after an attack of hemoptysis, Dr. Phillip Carrigan, an American physician of Concord, New Hampshire, begged breast milk of every woman he met, and only when he did not get enough did he resort to cow's milk. Chapman (5) had spoken of the superior

[1] Condensed from a thesis submitted in partial fulfillment of the requirements for the Master of Nutritional Science degree at the School of Nutrition, Cornell University, Ithaca.

qualities of breast milk as compared with asses' milk. Carrigan took this information literally. Brown (4) states that Dr. Carrigan recovered, however, from his attack of hemoptysis. The prescription of woman's milk for the consumptive was, of course, hazardous for the woman. In one case in which human milk was prescribed for a young Englishman, two wet nurses who suckled him died later of phthisis (4).

In addition to the milk treatment, small amounts of other foods were used. In 1712, in Greece, France, and England, bouillon made from the lungs of a calf or from a viper, tea, coffee, and the fat of dog and man were used (4).

Although milk formed the basis of the diet used most widely at this time, Robert Morton, whose writings were published in England in 1694, referred to a diet for tuberculous patients without the mention of milk. He said (4) that the tuberculous patient should be given food such as "affords a good juice, by which as few excrementitious particles may be heaped up in the blood, such as mutton, veal, mountain birds, fish that are friable, and easily brake into pieces, and crawfish. Let the patient eat flesh only at dinner, and content himself with papadoe (bread soup), water gruel, broth, potch'd eggs at night. Let the quantity of his food be moderate, and let him avoid gorging til he can eat no more. Let him drink sparingly and not too strong, as effervescence may heat the blood as a small beer. Let him forbear wine and spirituous liquors." Although Morton urged moderation, meat, fish, eggs, and water gruels were emphasized in the diet.

Farinaceous food consisting of cereals, puddings, and custards were added to the milk diet in the nineteenth century. Pereira in his publication, *Food and Diet*, suggested (6), "Besides cow's milk, which constitutes the principle article of food, this diet includes the use of farinaceous substances, (such as arrow-root, sago, and tapioca) bread, and light puddings (of rice, bread, or batter). Milk is ordered when we are desirous of affording support to the system with the least possible stimulus or excitement. It is well adapted for inflammatory diseases of the chest, (phthisis especially) of the alimentary canal, and of the bladder, when it is expedient to employ a nutritious but not a stimulating diet." Pereira recommended this diet especially for hemorrhage when the "powers of the system have been greatly exhausted." Milk diets were used in a number of the hospitals in England during this time, and Pereira has included several of these diets in his book.

Maclean, in 1814, recommended (7) that "food which contains the greatest quantity of nutriment in the smallest bulk," as farinaceous foods, gelatinous meat, broths, aged meat, and game, be given the tuberculous patient.

Another early American writer, Samuel Morton, referred (8) to the use of farinaceous foods and milk when the tuberculous patient had an "active hectic, or local inflammation; or when the patient keeps to his bed, or leads a sedentary life." The addition of farinaceous foods to the milk diet seemed to be a transitional treatment prior to use of forced feeding.

FORCED FEEDING

Forced feeding appears to have been well established by 1900 when Goodbody performed the first metabolic study on tuberculous patients in England and Germany (9). I have been unable to learn how or when this type of treatment originated. A vivid description of the requirements of this treatment is given by Pottenger (10), who was opposed to forced feeding, but recommended a more liberal diet than many other workers with tuberculous patients. Pottenger describes the treatment thus: "We hear of the stern medical director of a sanitarium who sits at the head of the table and does not allow the patients to leave until they have eaten all the food served them; also, of patients being compelled to empty a quart pitcher of milk, besides eating other food, and turning the pitcher upside down before leaving the table. We hear boasts of patients' eating three meals, drinking four to six quarts of milk and taking as much as two dozen raw eggs a day."

According to another report of the forced feeding treatment, the patient in some instances was given sixteen raw eggs and twenty-nine glasses of milk in one day in addition to 1 lb. rare beefsteak and other foods normally eaten in the diet. The following diet was ordered for an adult tuberculous patient by the physician at that time: 1 pt. of cream, 1 qt. of milk, 12 raw eggs, a beefsteak twice daily weighing ½ lb., several pieces of bacon for breakfast in addition to the beefsteak, and not to the exclusion of the same, and two baked Irish potatoes as large as goose eggs, one in the morning and one at night. At the noon meal, the patient was permitted to eat roast beef or any kind of game, poultry, fish, or anything else he wished.

This physician had his patients rub pig lard or bear grease on their sore muscles before retiring and suggested that possibly by this process, the patient would absorb 1 lb. lard through the skin each week.

Klebs (11), who edited *Tuberculosis, A Treatise by American Authors*, published in 1909, further emphasized forced feeding by saying, "Proper nourishment, then, is of first importance, for patients do well under adverse climatic and other conditions, but they cannot improve without food; and an abundance of it. . . Food values in calories of energy have their true place, and hold good for the healthy individual, but they often savor too much of the medicinal in those who are sick and have disordered digestions. The most reliable guide of the patient's improvement is his gain in weight." He goes on to recommend that food consumption be

regulated by the weekly weight record. He suggested that in addition to other food, the patient should take 1 to 2 qt. plain or modified milk, daily. He also included eggs by using the white or albumen with orange juice and crushed ice and a pinch of sugar or whole eggs in eggnogs with sherry or port. The preparation was made by pouring the wine in the bottom of the glass, then placing a layer of egg, and repeating with alternate layers of wine and egg to make an "egg sandwich." This drink could also be made with whiskey or brandy. Klebs stated that he had patients who daily took twelve eggs in milk with whiskey, brandy, sherry, or port. In addition, he thought that a "raw-beef sandwich" could be digested more easily than other forms of food, and therefore recommended the use of raw beef juice. The juice was made by taking blocks of beef 2 in. square, round steak being best, putting them in a hot skillet and cooking them quickly. Then they were gashed with a knife and squeezed with a meat press or a lemon squeezer into a cup standing in hot water. The heating of the juice was supposed to make it more palatable and easy for the patient to take. Klebs spoke of the natural aversion to taking raw meat, although this does not pertain to oysters, clams, or parasites (which are destroyed by cooking). He described the cooked connective tissue of meat as being digestible and considered squeezed beef juice next to this meat in digestible qualities.

With reference to the use of alcohol in the diet, Klebs said (11): "It has been proved that alcohol, when used to excess, not only does not protect the individual from tuberculosis, as was formerly believed, but absolutely predisposes him to it. On the other hand, Professor Atwater and others have demonstrated beyond question that alcohol, in moderation, is a food and beneficial to the system. This he is able to maintain not only from his experiments, but from the fact that there is no hardier stock of people to be found on earth than the wine-drinking nations. It has been shown that alcohol is a negative food; that, in its immediate oxidation, it saves tissues that would otherwise be expended in the life processes. In moderate amounts it stimulates the appetite, improves digestion and reduces the temperature, and diminishes the night sweats."

A dietary recommended for the tuberculous patient by Klebs and his associates (11) is interesting to present nutrition workers.

Breakfast—8 A.M.: fruits; cereals; 1 raw egg, 3 glasses milk; coffee; toast

Breakfast—10 A.M.: 2 raw eggs, 2 glasses milk, crackers, pretzels

Dinner: 12:30 P.M.

Boiled white potatoes	Cream of tomatoes	Stewed chicken
Steamed rice	Broiled steak	String beans
Apple tapioca	Stewed chicken	Macaroni
Crackers	Stewed onions	Rice pudding
	Salad	Nuts
	Cheese	
	Coffee	

or

Breast of lamb	Baked apples
Boiled white potatoes	Cheese
Purée of peas	Crackers
Prime ribs of beef	Cup custard
Spinach	Nuts
	Demi-tasse

4 P.M.—2 raw eggs; 2 glasses milk; crackers; pretzels

Supper—6:30 P.M.: 1 raw egg; 3 glasses milk; tea; toast; fruit

8:30 P.M.—2 glasses milk

Total daily intake: 6 raw eggs, 3 qt. milk, and one full meal

The forced feeding treatment was also being used in Germany at this time. An enthusiastic description of the treatment administered at Nordach Sanitarium in Baden, Germany, was given by James A. Gibson, an English chemist who was a patient there from October 1895 to January 1896. Members of the British Medical Association pronounced him a well man in July 1898. In his book, *The Nordach Treatment for Consumptives in the Country*, he said (12): "Dr. Walther who was head of the sanitarium had three features of treatment: (1) Overfeeding . . . (2) Regulation of the amount of exertion and rest . . . (3) Pure air." With regard to forced feeding, Gibson described Dr. Walther as saying: "There can be no cure without weight-gaining, and so that there be every chance of cure, he encourages every patient by every means to eat as much as possible. It is amazing the amount one can eat when forced . . . , twice to three times as much as one would feel inclined to eat. There is no harshness used, but somehow the Doctor is able to make everyone eat the amount necessary. The food is of ordinary kinds, meats, potatoes, vegetables, butter, bread, cheese, fruits, sweets. The gain in weight is often enormous. I have known a patient to gain 8 lb. in one week, and another to double his weight while at Nordach . . . and as there is a friendly rivalry as to who will gain the most, there is a stimulus to good eating. . . We used to say among ourselves or when impressing on a newcomer the necessity for eating largely, that we had to eat three times the ordinary amount of food; one portion to replace natural waste; a second portion to replace extra waste from the disease; and a third portion to put on weight so the system might be strengthened. . . No medications are given or only in a most exceptional case; they cannot arrest the disease, and do even little or no temporary good, and only upset the stomach."

Professor Irving Fisher of Yale University reported data from a survey of eighty-five leading sanitoria in the United States and abroad, at the Sixth International Congress of Tuberculosis at Washington, D. C., in 1908 (13). Of the eighty-five institutions surveyed, forced feeding was favored in sixteen. It seems that at Nordach Ranch, a sanitarium at Colorado Springs, one patient took as many as twenty-nine glasses of milk in addition to his regular diet in one day (14).

Pottenger (10) referred to raw meat sandwiches made of stale bread, the use of raw meat being called "zomotherapy." He did not favor extreme forced feeding, although he prescribed diets higher in protein than the diets recommended by other authorities. He suggested four to six raw eggs daily, and some of his patients ate as many as 2 doz. a day. He placed particular emphasis on the use of viscera of the animal along with raw beef sandwiches, rare steaks, and beef juice.

RECTAL FEEDING

The feeding of the tuberculous patient through the rectum was a treatment proposed by Thomas J. Mays, a New York physician, in 1901. Dr. Mays (15) said: "Feeding through the rectum is a method which deserves considerate attention in the alimentation of this disease. In spite of the theoretical objections against this way of administering food there is no question that practically all of the food which is placed in the lower bowel is digested and absorbed. It is a method which economizes the strength of the stomach and sometimes counteracts a tendency toward diarrhea that exists in many cases. Liquid food, like milk and fresh beef juice, about six ounces of the former and four of the latter, with ten grains of pepsin, is to be given with a hard-rubber syringe, morning and evening. The author has used, with great benefit, from two to four ounces of fresh blood given morning and evening in the same way, not, however, during the same period when the milk and beef juice were administered by the bowel. An egg beaten up with milk, with the addition of a little pepsin, is also of value. Another servicable plan is to place a teaspoon of raw, scraped beef-pulp in a large, hollow suppository, with about five grains of pepsin, and introduce these into rectum three or four times a day."

OTHER DIETS OF THE EARLY TWENTIETH CENTURY

Dr. Watson (14), a practitioner, in 1913 prescribed a "milk diet" consisting of jellied meat broths, raw meat sandwiches, milk, milk products, farinaceous foods, and wine. He also prescribed a "meat diet" which—in addition to meat, milk, eggs, bread, and butter—contained two servings of stewed dried fruit. Neither diet contained a leafy vegetable, whole grain cereals, or fresh fruit. Dr. Watson believed that the tuberculous patient should have a diet one-third more nutritive in protein than the healthy person. Both of these diets contained large amounts of protein, but the absence of leafy vegetables, whole grain cereals, and fresh fruits caused them to be low in ascorbic acid. The large quantities of meat supplied a liberal amount of tryptophan, the precursor of niacin, as well as ample iron and thiamine. Dr. Watson prescribed these diets in 1913, at a time when no tables of vitamin values were available.

EARLY METABOLIC STUDIES

In 1900, Goodbody, Bardswell, and Chapman (9) conducted the first metabolic study on tuberculosis in England and Germany. Because emphasis had been placed on the overfeeding of the pulmonary tuberculous patient, they wished to note the effects of such a regimen on the metabolism of these patients. Six patients were used in the study, which was conducted at Brompton Hospital in London. The regular hospital diet, which provided 2900 calories consisting of 116 gm. proteids, 123 gm. fats, and 277 gm. carbohydrate, was used for "Diet A," which went through three gradations to "Diet D," which provided 271 gm. proteids, 231 gm. fat, and 392 gm. carbohydrate. The authors reported that Diet A, which was given to Cases 1, 4, 5, and 6, consisted of:

Milk	3 pints
Meat	3 oz.
Bacon	1 "
Butter	1 "
Bread	8 "
Sugar	1 "
Potatoes and cabbage	4 "
Rice pudding	5 "

"In Period D, the diets varied considerably; but the largest given—that of Case 1—was as follows:

Milk	5 pints
Chicken	4 oz.
Bacon	2 "
Eggs	2
Butter	2¼ oz.
Bread	11 "
Sugar	3 "
Rice pudding	5 "
Potatoes	2 "
Cabbage	4 "
Grapes	4 "
Figs	4 "
Somatose	3 "
Lactose	1 "

"The most suitable diet observed for the six cases was used in Period B. It provided about 137.5 gm. proteids, 136.96 gm. fat, 296.32 gm. carbohydrate, and 3105.96 calories." It was concluded that forced feeding was not a desirable regimen either for the normal individual or the tuberculous patient, as each subject experienced some unpleasant symptoms when the diet was administered. The authors felt that the tuberculous patient should have an increased but not an excessive diet, and they advised that an ideal diet, such as the one administered in Period B, be diminished as the disease became quiescent and the patient approached normal weight. They still recommended, however, a more substantial diet than in health.

In 1920 and 1921, McCann and Barr (16, 17) found further evidence that forced feeding may be disadvantageous in that it stimulates overventilation.

NUTRITIVE VALUES OF HISTORICAL DIETS

Most of the diets described above contained large quantities of protein foods. Beginning at A.D. 30, Aretaeus (4) prescribed fresh milk, fresh eggs, and a generous diet for the tuberculous patient. The protein content of this diet was high. The physicians in following periods, excluding the period of the milk diets, seemed to place emphasis on foods which contained large amounts of protein. In 1694, Robert Morton (4) prescribed meat, fish, and eggs. All diets of the forced feeding period contained almost toogenerous amounts of fresh and cured meats, fish, fowl, cheese, eggs, and milk. Bell, in 1845, recommended (18) an "abundance of wholesome food in which a fair proportion of animal matter including milk and eggs." Also in 1900, Goodbody and his associates (9) included protein foods in ample amounts in the research diets of the first metabolic study of tuberculous patients. Dr. Watson still emphasized (14) protein foods when he prescribed a "meat diet" and a "milk diet" in 1913. As the tuberculous patient received generous amounts of protein during these periods, intakes of thiamine and iron were probably ample.

The milk diets prescribed by Pereira (6) in 1843 contained a small amount of protein, and milk, the only source of ascorbic acid. As human or asses' milk was used at this time, the amount of ascorbic acid in the tuberculous patient's diet was dependent on whether the woman's or animal's diet had contained foods which amply supplied the vitamin. During this time, also, since the woman or animal was brought into the room of the tuberculous patient in order that fresh milk might be obtained, the patients received the complete amount of ascorbic acid available in the milk, as the vitamin was not dissipated by pasteurization or storage.

The milk diets supplemented with farinaceous foods, supplied no other source of ascorbic acid except the milk. Fresh fruits and green vegetables were included neither in these diets prescribed in the nineteenth century nor in the meat and milk diets prescribed by Dr. Watson in 1913. Therefore, the dietary ascorbic acid in this era was very low.

However, diets which were prescribed during the forced feeding period did contain sources of ascorbic acid. Fisher (13) recorded diets which contained cabbage and potatoes, spinach, tomatoes, and apples, while Klebs (11) added such fruits as bananas, oranges, and also string beans and lettuce. The diets of the forced feeding period and those prescribed by Goodbody in his research in 1900 were ample in foods which contained protein and ascorbic acid.

SUMMARY

In the treatment of tuberculosis, a proper diet for the patient has been a point of interest from the time of the early Christian era when Aretaeus, the Cappidocian Greek from Asia Minor, in 30 A.D. recommended milk, fresh eggs, and a generous diet, until the present. Possibly the most stressed nutrient has been animal protein in the forms of milk, eggs, and meat. Since the discovery of vitamins, special emphasis has been placed on sufficient quantities of ascorbic acid and in some instances vitamin A. Although excessive amounts of food were given the tuberculous patient during the forced feeding period of the nineteenth and early twentieth centuries, even today, the tuberculous patient is considered to need a diet moderately in excess of the normal diet.

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Food Preferences of College Women[1]

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FOOD preferences and eating habits of any group required to eat in a specified place should be of interest to dietitians. Students who live in a college residence hall on a room-and-board basis comprise one such "captive" group. Even though studies have been reported on the food preferences of college students, their likes and dislikes, their food fads and fancies, the complaining murmur in residence halls about food continues. Do residence-hall dietitians make an effort to determine the food preferences of the people they serve? Do they have a planned, functioning campaign of education in food and nutrition in order to "sell" their products to their "captive" customers? How uniform are the food preferences of college students?

Hall and Hall (1) reported the reaction of 478 women and 215 men to 150 foods commonly served at the University of California, University of Oregon, and Western Reserve University. They considered a food to be "disliked" if a person would not eat it under ordinary circumstance. They listed foods found to be disliked in decreasing order, and classified them as to class of foods, individual foods, and unknown foods, as follows:

Classes of Disliked Foods
Organ meats
Shellfish
Strong-juiced vegetables
Dairy products
Non-shell fish
Sweet-juiced vegetables
Breads and cereal
Poultry
Fruits
Meats
Nuts

Individual Disliked Foods
Buttermilk
Brains
Kidney
Margarine
Parsnips
Eggplant
Caviar
Hominy
Oysters
Turnips
Liver, calf and beef
Rutabagas

Unknown Foods
Leeks
Abalone
Okra
Endive
Chard
Caviar
Lentils
Rutabagas
Persimmons
Brains

Hall and Hall pointed out that three of the foods disliked the most were also unfamiliar. Similarities of taste between the groups at the three universities were more striking than the differences. Foods were disliked most because they: "do not taste good," have an unpleasant texture, cause illness, have an unappetizing general appearance, or have a displeasing odor. Women had more food aversions than men, but were familiar with more foods.

Young (2) reported on dietary habits of Cornell University women living in five different situations, namely: a sorority house, private homes where students work for room and board, various campus-controlled cottages, a supervised residence hall, and a graduate house where students were free to choose their own eating places. Students in supervised eating places have the opportunity to be well-fed but individual problems still exist. Half of the forty-three women studied never missed breakfast, and none missed breakfast every day of the week in which the dietaries were taken. All students ate some between-meal snacks—from 3 to 18 times a week, or 1 or 2 times a day. Students who had a room-and-board arrangement ate between meals more than the others, most of which was done in the evenings by groups who had missed breakfast. Sweets were most frequently consumed between meals with fruits and carbonated beverages following. A fairly liberal use of milk for between-meal eating was observed whenever it was available.

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Scoular and Foster (3), who compared the food intake of women at North Texas State College with that of women of other colleges, reported the nutrient consumption of 106 students living in residence halls to be above the recommended amounts. If the residence hall dietitian served cereal for breakfast, the women ate it; 50 per cent preferred milk to coffee for breakfast, with 70 per cent drinking it also for lunch and supper.

Leverton (4) checked the reaction of University of Nebraska freshmen—110 women and 56 men—to 50 foods which were considered to be (a) low in cost, (b) good nutritive bargains, and (c) involved with some definite prejudice. These foods included kidney, brains, margarine, skim milk, potatoes, and the most common vegetables and fruits. Of the men, 8 per cent checked no food that they were unwilling to eat as compared to 4 per cent of the women. All men were willing to drink milk often, as compared with only 84 per cent of the women. The women preferred foods high in cellulose, i.e., fruits and vegetables such as apples, oranges, potatoes, green peas, raw tomatoes, leaf lettuce, and carrots. Food which the women were unwilling to eat were buttermilk, squash, turnips, kidney, and margarine. Unwillingness to eat margarine was expressed by 37 per cent of the women and 27 per cent of the men. The never-tasted foods were the same as those listed as disliked.

Lamb and McPherson (5) found that 213 women living in a cooperative residence hall at Texas Technological College during a five-year period had an excellent food selection when given a free choice of foods to select from various food groups. No effort was made to determine their food preferences, but some guidance was offered in menu-planning and marketing. Quantitatively, the dietaries were low only in potatoes, meats, and cereal products, but adequate in all nutrients. Results such as these would imply that college women's preferences can provide adequate nutrition if the women are offered some guidance in marketing. For example, the daily milk order was such as to allow not less than 1 pt. per person in addition to that used in cooking. Admittedly, this may not influence the individual girl.

Eppright (6) considers food acceptance to be a complex reaction influenced by biochemical, physiologic, psychologic, social, and educational factors, in addition to those of sex and mental state. People differ greatly in their sensory response to food, and likes and dislikes of food move in a framework of race, tradition, economic status, and environmental conditions.

EXPERIMENTAL PROCEDURE

The food preferences and eating habits of women of Texas Technological College were analyzed to determine the regularity of eating in the residence hall, the students' reactions to food, and their between-meal eating habits. The regularity of eating in the residence hall was based on the total of 648 residents in two halls served from a common kitchen. The residents paid for room and board and there was no deduction for meals not eaten. The food service allowed no choice in foods. The actual attendance count at three meals daily for two weeks was made to determine the percentage attendance. The students who were confined to their rooms for illness and those who had "signed out" were deducted from the total number of students living in the two residence halls, before the percentage attendance at meals was calculated, since it was the purpose to determine those who failed to attend meals without reason or previous plan.

A questionnaire on food and between-meal eating habits was answered by 170 women who were attending classes in which some phase of foods and nutrition was being studied. The questionnaire was in no way connected with classwork. The group included 66 freshmen, 24 sophomores, 32 juniors, 37 seniors, and 11 unclassified students. Of these, 101 lived in the residence hall while the other 69 lived in the home management house, a student cooperative residence, a hospital's student nurses' residence, or at home. The latter non-residence-hall group had as free a choice of food, as is practiced in small group-living. The women ranged in age from seventeen to thirty-six years with most of them being eighteen to twenty years old. A list of 116 common foods which were served frequently in the residence hall was classified by each girl according to one of the following categories: "Seldom or Never Eaten," "Well-Liked and Enjoyed," "Indifferent Toward the Food," and "Disliked." The students were asked to check one column only for each food listed. The same food might be listed as many as four times by specifying the method of preparation, as for example, soft-cooked eggs, hard-cooked eggs, scrambled eggs, fried eggs. This gave the student a chance to express his reaction toward the method of preparation as well as the food itself.

RESULTS

During the survey, only 54 per cent of 648 dormitory residents attended breakfast in the dining room, 91 per cent came to lunch, and 81 per cent to dinner. Attendance at breakfast was lowest on Saturday and Sunday, being 45 and 29 per cent respectively. Attendance at lunch was constant, varying not more than 5 per cent during a week. Dinner attendance was related to "date-night" social functions, when the residents did not take advantage of meals already paid for.

Foods well liked and enjoyed by these college women included a wide assortment from which to plan menus. Nine out of ten of the 101 residence hall women voted 37 of the 116 foods as being well-liked. Fried steak was the only food checked as being well-

TABLE 1

Foods well liked and enjoyed

FOOD GROUP	NUMBER OF ITEMS LISTED	NUMBER OF FOODS WELL LIKED AND ENJOYED			
		Residence hall students		Students living elsewhere	
		By 90% or more	By 75% or more	By 90% or more	By 75% or more
Dairy products and milk drinks	3	2	2	0	2
Cereals	11	0	4	0	3
Fruits and vegetables	59	18	28	12	29
Citrus fruits and tomatoes	7	4	5	2	5
Green or yellow vegetables	26	3	10	3	10
Other fruits and vegetables	26	11	13	7	14
Meats	16	7	11	7	13
Egg preparations	4	0	0	0	1
Desserts (including sweets)	19	10	14	8	13
Miscellaneous	4	0	2*	0	2*

* The preferred foods were tea and pickles.

liked and enjoyed by 100 per cent of the residents, while whole milk, apples, oranges, and cookies shared the second position of preference with 97 per cent voting favorably. The non-residence-hall group selected only 27 foods, and no food received the approval of over 97 per cent of the group, this position being shared by roast beef, lettuce salad, cookies, and cherry pie. Of the non-residence-hall group, 87 per cent liked whole milk and a chocolate drink. The green and yellow fruits and vegetables liked by the non-residence hall group represented better nutritional choices than those of the resident hall group, but both were pathetically low. Nine out of 10 women liked only 18 of 59 fruits and vegetables offered them when eating in the residence hall, and only 12 of the fruits and vegetables were well liked and enjoyed by the non-residence-hall students. Breads were not well liked by 90 per cent of the women, although 86 per cent of the residence hall students liked and enjoyed biscuits; white bread followed as a close second. Of the non-residence-hall women, 8 out of 10 liked biscuits and corn bread equally well, with white bread next. Whole wheat bread was liked and enjoyed by 54 per cent of women eating in the residence halls and 61 per cent of those eating elsewhere. Both groups preferred the flaked type, ready-to-eat cereals to any other; hot cooked cereals were liked and enjoyed by less than one-third of the residence hall students and 47 per cent of the others.

The tabulation given in Table 1 summarizes the well liked and enjoyed foods of these women. This summary shows that the food preferences were very similar, regardless of where the students lived and ate since, with only a few exceptions, the well liked and enjoyed foods were the same. The difference in the foods well liked and enjoyed by 90 per cent and those by 75 per cent of either group was not as large as might have been expected. For example, 90 per cent of the residence hall students liked 19 of the 59 fruits and vegetables listed, whereas 75 per cent liked 28.

TABLE 2

Foods disliked by 10 per cent of 170 women

FOOD GROUP	NUMBER OF ITEMS LISTED	NUMBER OF FOODS DISLIKED (by 10 per cent of the students)		
		Residence hall students	Students living elsewhere	Total
Dairy products	3	1	1	1
Cereal products	11	4	3	4
Fruits and vegetables	59	28	28	29
Citrus fruits and tomatoes	7	2	2	2
Green and yellow vegetables	26	16	16	19
Other	26	10	10	8
Meats	16	4	3	4
Egg preparations	4	3	1	3
Desserts and sweets	19	6	0	6
Miscellaneous	4	0	1*	1*
Total	116	46	37	48

* The "food" disliked was coffee.

Foods well liked and enjoyed by 75 per cent or more of the 170 women were:

DAIRY PRODUCTS

Whole milk
Chocolate milk

MEATS

Bacon
Fried steak
Broiled steak
Fried chicken
Baked chicken
Smothered chicken
Baked ham
Fried ham
Roast beef
Roast pork
Fried fish
Tuna salad
Beef stew

DESSERTS AND SWEETS

White cake
Yellow cake
All pies
Cookies
Cinnamon toast
Doughnuts
Plum jelly
Peach preserves

MISCELLANEOUS

Tea
Pickles

FRUITS AND VEGETABLES

Citrus Fruits and Tomatoes

Oranges
Grapefruit
Lemons
Raw tomatoes

Green and Yellow Vegetables

Cabbage slaw
Raw carrots
Lettuce salad
Green beans
Fried okra
Mashed sweet potatoes
Baked sweet potatoes
Fried peaches
Frozen peaches

Other

Pineapple salad
Red beans
Blackeyed peas
Buttered corn
Creamed potatoes
Baked potatoes
Fried potatoes
Applesauce
Baked apples
Raw apples
Bananas
Canned peas
Pineapple juice
Vegetable soup

An analysis of this list, however, does not tell the whole story since the foods toward which persons are indifferent may comprise a significant factor in studying dietary problems. These women were most often indifferent to the cereal and vegetable groups, although less than 20 per cent were indifferent to any one food. Foods that rated the greatest indifference were: all cereals, eggs, scalloped cabbage, broiled and scalloped tomatoes, beef stew, broiled salmon, and the sirup group—honey, molasses, and maple sirup.

One out of ten residence hall students disliked 46 of the 116 foods, or 40 per cent of the total listed. A like percentage of non-residence hall students disliked 37 of the foods (32 per cent). An analysis of these disliked foods in terms of food groups is given in Table 2.

Of the foods meeting with so much dislike by such a large number of residents, the strong-flavored vegetable group dominated. Some foods were included in the list because of their method of preparation, such as soft-cooked eggs, broiled tomatoes, and creamed carrots. These foods were not disliked when prepared in other ways. The foods disliked by the two groups were very similar, but more residence hall students disliked more foods than did the group living elsewhere (Table 3). The foods disliked by as many as one-third of the women were all from the fruit and vegetable group with the exception of soft-cooked eggs and buttermilk. Molasses, liver, and coffee joined the disliked group for one-fourth of the students. Eight foods were not disliked by any residence hall student, while thirteen were so considered by the non-residence hall group. Only three foods were not disliked by anyone: bacon, broiled steak, and lettuce salad; seven foods were disliked by not more than one person: yellow cake, cherry pie, doughnuts, cookies, roast beef, white bread, and raw tomatoes.

The seldom- or never-eaten foods followed the pattern set by the difference between the well liked and enjoyed foods and the disliked ones. Collards headed the list with 38 per cent of the students seldom or never eating them. Thirty per cent seldom or never ate whole wheat bread; and 35 per cent, Cream of Wheat or rolled oats. Foods seldom or never eaten by 25 to 30 per cent of these college women were: All Bran, puffed cereal, broiled tomatoes, avocado, Brussels sprouts, and creamed onions, Molasses and fried eggplant were next on the list. These foods, with the exception of whole wheat bread, also were disliked by one out of ten students.

Students were asked to check the characteristics of foods they especially liked. Ninety-one per cent checked color; 86 per cent, crisp, crunchy texture; 79 per cent, well done vegetables, and 75 per cent, fried foods. The distribution of these preferences is shown in Table 4. Naturally strong, positive flavors were reported to be preferred over naturally mild, bland, indefinite flavors, although this did not agree with the food preferences checked, since the students disliked collards, mustard greens, eggplant, cabbage, turnip greens, buttered turnips, and buttermilk most frequently. Frying was the first preference in methods of preparation, fried chicken being preferred to smothered or baked; fried okra to buttered; and fried onions to creamed. Creamed potatoes were slightly preferred to fried; on the other hand, more people disliked creamed potatoes than disliked them fried.

TABLE 3

Analysis of food dislikes according to percentage of students

FOODS DISLIKED BY		
40 to 48% of students	30 to 39% of students	20 to 30% of students
Residence Hall Women		
Buttered turnips	Mustard greens	Squash in large pieces
Creamed onions	Turnip greens	Creamed carrots
Buttered broccoli	Collards	Spinach
Boiled cabbage	Scalloped cabbage	Scalloped tomatoes
	Soft-cooked eggs	Brussels sprouts
	Avocado	Raw onions
	Broiled tomatoes	Molasses
	Mashed squash	Coffee
	Boiled okra	
	Fried eggplant	
	Buttermilk	
Non-Residence Hall Women		
None	Canned figs*	Buttermilk
	Mustard greens	Turnip greens
	Boiled okra	Collards
	Avocado	Fried eggplant
	Buttered turnips	Squash in large pieces
		Mashed squash
		Soft-cooked eggs
		Liver and onions
		Broiled tomatoes
		Buttered broccoli
		Creamed onions

* Disliked by 35 per cent—the highest per cent of non-residence hall women disliking any one food.

Many of the 170 students ate often between meals. At least once a day, 20 to 30 per cent drank milk, carbonated drinks, coffee, or milk drinks, or ate fruit; 10 to 20 per cent drank tea and ate candy bars; and the remaining 10 per cent ate an assortment of such foods as crunchy tidbits, cheese and crackers, sweet rolls and doughnuts, sandwiches, olives, pickles, nuts, pies, ice cream, cake, "hot dogs," and so on. Thirty to 55 per cent ate between meals more than once weekly, such foods as candy bars, carbonated drinks, ice cream, fruits, ice cream preparations, cookies, crunchy tidbits, and cheese and crackers.

The residence-hall group and the non-residence-hall group differed in their between-meal eating practices. Of the residents, 26 per cent drank carbonated drinks every day, 19 per cent drank coffee, 17 per

TABLE 4

Analysis of preferred characteristics of food according to percentage of students

FOOD CHARACTERISTICS PREFERRED BY			
75 to 100% of students	50 to 75% of students	25 to 50% of students	0 to 25% of students
Color	Highly seasoned food	Smooth, soft texture	Slightly cooked vegetables
Crisp, crunchy texture	Mildly seasoned food	Chewy texture	
Well-done vegetables	Naturally strong, positive flavors	Naturally mild, bland indefinite flavors	
Fried food	Individual flavors, not mixed in preparation	Several flavors blended in preparation	
	Boiled, buttered vegetables	Foods in cream sauce	
	Food served in large pieces or whole		
	Mashed foods		

TABLE 5

Reasons given for between-meal eating

REASONS FOR BETWEEN-MEAL EATING	STUDENTS	
	Residence hall	Non-residence hall
	%	%
To satisfy hunger	82	76
To be sociable	28	48
To substitute for a missed meal	42	37
To relieve boredom	19	26
At the urging of friends	14	26
No resistance to food	15	18
From habit	38	41

cent had a milk drink, 17 per cent had tea, and 16 per cent ate a candy bar. Of the non-residence-hall women, 65 per cent drank milk daily between meals, 55 per cent ate fruit, and 48 per cent had a carbonated drink. This choice of between-meal snacks may have been due to availability. The non-residence-hall students had access to the family refrigerator in many cases, whereas the residence-hall group had access to dispensers of candy bars and carbonated beverages which are located on each floor of the building. The non-residence-hall students ate more food between meals at least once daily than did the other group. Apparently students' reaction to coffee is definitely for or against, since 20 per cent drank coffee between meals even though 41 per cent seldom or never selected it.

The reasons the students gave for eating between meals were interesting and are presented in Table 5.

SUMMARY AND CONCLUSIONS

An analysis of food preferences of college students should be of inestimable value to dietitians serving this group. By not eating regularly, these students failed to take advantage of meals already paid for in a room-and-board plan of the residence-hall system. During a two-week period, 54 per cent attended breakfast; 91 per cent, lunch; and 81 per cent, dinner. The percentage not eating breakfast was higher than that reported by other colleges; however, the 46 per cent not eating breakfast in the residence hall may have eaten elsewhere, since as many as 42 per cent ate between meals in order to substitute for a meal missed.

The food likes and dislikes of this group appear to be typical of students and persons everywhere. The students liked whole milk, meats, citrus and some other fruits, few vegetables, and all pies and cakes. These women did not like coffee and preferred tea, yet many drank coffee between meals for numerous reasons. The disliked foods were mostly vegetables, some because of the method of preparation. Also disliked were buttermilk and soft-cooked eggs. The disliked foods were seldom or never eaten, even though no student was allowed to check two columns for one food. An attitude of indifference dominated the feeling toward cereal products. The characteristics preferred in foods were color; crisp, crunchy texture; well done vegetables; and fried foods.

Enough foods were liked from each food group to assure an adequate diet by at least 75 per cent of the students, provided the foods were properly prepared and served. The place of residence had little influence on food likes and dislikes. Between-meal eating was greatly influenced by the foods available, since 80 per cent of the college women ate between meals to satisfy hunger, 39 per cent to substitute for a meal missed, and 39 per cent from habit.

The study of food preferences of college students offers much information for consideration in planning and serving meals in college dormitories. Consideration of food preferences can lead to greater food acceptance and adequate food consumption. The foods "disliked" coincided with those "seldom and never eaten" which suggests great need for an educational program for residence hall groups. Some dietitians make an effort to acquaint their "captive" group with some of the reasons why certain foods are served, the budgetary limitations in menus and food preparation operations, in nutritional values, and in general acceptability.

Any "captive" group paying for its meals should have a chance to express choices or preferences. Authorities recommend that even the infant and preschool child be allowed choices in food. Numerous techniques have been employed to give students a choice in food selection, which include such devices as suggestion boxes, student committees on menu-making, discussion groups on food problems, and the popular cafeteria-style food service in which several similar foods are offered.

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Retirement Age

Retirement age, according to William B. Rawls, M.D., should be flexible, regulated only by the responsibilities of the job, type of work, and physical or psychosomatic fitness of the employee for his job, be he executive, supervisor, clerk, skilled or unskilled worker. Writing in the September issue of the *Journal of the American Geriatrics Association*, Dr. Rawls points out that the evidence indicates that establishing a chronologic age for retirement is unsound and unscientific. He feels that any rule that eliminates the fit with the unfit or discards the good with the bad reflects on the society that imposes such a regulation.

He says, "In reviewing this subject, I have been unable to find that a sound scientific basis was used in selecting any age for retirement. It is probable that sixty-five was chosen by some one group or organization and, a precedent having been set, this age received general acceptance as proper for retirement; but this took place many years ago and it is unlikely that the increasing span of life was considered. Today, as a result of medical progress, there are many men and women who are just as capable—perhaps even more capable—at sixty-five as during any other period of life.

"An individual may be sixty-five years old chronologically and fifty to fifty-five years old physiologically. . . . This is also true psychologically. The man of sixty-five may have the same enthusiasm, drive, and ability to plan for the future as a younger person. In fact, with his experience and seasoned judgment, the older man can, and often does conceive and execute bold plans or solve problems that are insurmountable to the younger mind.

"To base retirement on a chronologic age is in my opinion completely unreasonable. I believe each case should be decided on its own merit, according to standards established for determining fitness for 'duty.' In attempting to formulate such standards, many factors—physiologic, human, economic—must be considered. Should physical standards be identical for every type of work? If so, can a worker be transferred to a less strenuous job and will he consent to a transfer which might mean less salary or loss of seniority rights? If older people are employed, will the time lost from work following a minor accident exceed that in the younger age group? Is his productive capacity as great?

"A survey by the Bureau of Labor Statistics a few years ago among workers sixty-five to sixty-nine years of age showed 3.3 days of absenteeism per 100 days, whereas the rate for workers twenty-five to twenty-nine years old was 4.3 per 100 work days. Nondisabling injuries per million work hours totaled 1500 among the twenty-five to twenty-nine age group, in contrast to . . . 430 for the group aged sixty-five and over. A more recent survey by the Federation Employment Service of New York revealed that of workers between forty and sixty years of age, 42 per cent were judged superior, 41 per cent equal, and 17 per cent inferior to the younger worker.

"In the event of more serious accidents to the older workers, will the death rate be higher because of the prevalence of arteriosclerosis or other conditions common among the older group? For example, will head injuries precipitate cerebral thrombosis or cerebral hemorrhage? Is the manual laborer with hypertension more prone to accidents? Is a truck driver with hypertension more accident-prone because he is more likely to be afflicted with a coronary thrombosis or cerebral thrombosis or hemorrhage? Should we insist on more rigid retirement standards for the truck driver because of the serious consequences to others that may follow an accident involving a truck?

"It has been said that the ability to organize and make valid decisions is the first aptitude to disappear with approaching age. Executive ability is a special above-normal attribute possessed by a few. As such, it may be lost more quickly as age advances than the ability to perform routine clerical or mechanical work. We must, therefore, adopt a realistic attitude toward retirement of supervisory and executive personnel, in order not to burden our organizations with dead wood. It is possible that the standards set for executives should be higher than those for the ordinary worker, but any hard and fast policy of retirement at a set age is unsound."

Nonhomogenized vs. Homogenized Milk in Baked Custards[1]

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WITH the trend toward homogenization of more of the fluid milk consumed in homes and institutions, an investigation of its use in cookery has been indicated.

Since milk constitutes a high percentage of the ingredients of custards, it can be an important factor in the quality of the product. Questions about the quality of custards made with homogenized milk have been raised by homemakers. Suggestions of the inadvisability of using homogenized milk for baked custards have been noted (1, 2).

Among published reports (3–7) on the use of homogenized milk in cookery, two have dealt with baked custards (3, 4). Hollender and Weckel (4) found that baked custards prepared with homogenized milk had lower curd tension and greater serum separation than similar products made with nonhomogenized milk; they noted that either a shorter cooking period or lower baking temperature tended to lessen the serum separation. Carr and Trout (3) reported that homogenized milk produced baked custards with higher curd tension, higher standing index, and less syneresis (after 3 hr.) in comparison with custards similarly prepared with nonhomogenized milk. The rate of heat penetration was slower in the custards made from homogenized milk, and about 15 min. more baking time were required.

In a study of problems associated with the use of homogenized milk in cookery (8), Shaw included the preparation of baked custards. She found that custards made with homogenized milk were less firm, as indicated by penetrometer readings, and showed less drainage, after standing 1 hr., than similar custards prepared with nonhomogenized milk.

After Shaw's study (8) was completed, it was found that Elbert (9) had conducted an investigation in which she found that custards made from milk homogenized at a pressure of 2500 lb. per square inch had significantly higher curd tension than custards made from nonhomogenized milk, but the difference in drainage was not significant.

The different conditions of preparation which prevailed in the four studies cited are summarized in Table 1. The differences in formulas and procedures in preparation and in the methods of measuring the characteristics of the custards may possibly account for some of the differences reported.

It is well known that among the factors which may influence firmness and syneresis in custards are the proportions of egg, milk, and sugar in the formulas used; the temperature at which the mixture is heated; and the rate of heating (10). Lowe (10) also suggested that forewarming the milk may influence the characteristics of the finished custard. No data were found to show whether these factors have the same effect on custards made with homogenized and nonhomogenized milks; therefore, it seemed desirable to obtain information on the effect of some of these variables. Consequently, a factorial experiment of limited scope was set up to compare the relative effects of two formulas, three temperatures for preheating the milk, and three oven temperatures on the characteristics of baked custards made with homogenized and nonhomogenized milk.

EXPERIMENTAL PROCEDURE

Formulas and Temperatures. The two formulas differed in the proportions of eggs and sugar to milk. Formula I was the same as that used by Shaw (8), with 25 gm. sugar and 48 gm. egg for each cup of milk. Formula II was essentially the same as that used in Elbert's study (9) (Table 1) in which the

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TABLE 1

Summary of conditions used in studies on baked custards made with homogenized milk

INVESTIGATORS	PRESSURE FOR HOMOGENIZATION	PROPORTIONS OF INGREDIENTS TO 1 CUP MILK		TEMPERATURE TO WHICH MILK WAS PREHEATED	OVEN TEMPERATURE	INTERNAL TEMPERATURE TO WHICH CUSTARD WAS BAKED
		Sugar	Egg			
	lb./sq. in.	*gm.*	*gm.*			
Hollender and Weckel (4)	1800	17.0	37.6*	not stated	350° to 380°F. (177° to 193°C.)	not stated
Carr and Trout (3)	not stated	20.0	48.0	122°F. (50°C.)	325°F. (163°C.)	186.8°F. (86°C.)
Elbert (9)†	1500 and 2500	22.0‡	54.6‡	204°F. (96°C.)	400°F. (204°C.)	190°F.,§ 194°F., 197.6°F. (80°, 90°, or 92°C.)
Shaw (8)	2500	25.0	48.0	194°F. (90°C.)	350°F. (177°C.)	190°F. (88°C.)

* Estimated on basis of statements in the report.

† The formula included salt.

‡ Calculated from data in the report.

§ The custards were baked a stated length of time, but the average temperatures are assumed (from the report) to be as given.

proportions were: 22 gm. sugar, 54.6 gm. egg, and 1 c. milk. The three temperatures to which the milks were preheated were 122°F. (50°C.), 194°F. (90°C.), and 203°F. (95°C.). The three oven temperatures used were 325°F. (163°C.), 350°F. (177°C.), and 400°F. (204°C.).

Since it was impossible to prepare, bake, and test thirty-six batches of custard in one laboratory period, the following plan was used: On each day of baking, each of the two kinds of milk (nonhomogenized and homogenized) was used in each of the two formulas; the preheating temperature and the oven temperature for the day were selected at random until each combination had been used. Two replications were made.

Materials. Nonhomogenized whole milk and some of the same lot, homogenized at 2500 lb. per square inch were obtained daily from the Purdue University Creamery. U. S. Grade A eggs were purchased as needed from the retail department of the Purdue Creamery. The granulated sugar for all the custards came from the same lot. Table grade salt was used in Formula II.

Preparation and Baking of the Custards. A sufficient number of eggs for the day's baking were broken, well mixed, and portions weighed out for the four batches of custard. Each kind of milk was thoroughly mixed before portions were weighed. The milk was preheated in a double boiler.

A uniform procedure was used in mixing ingredients for each batch. Four portions of 125 gm. each were weighed into glass custard cups.[4] The cups were placed in an enamelware baking pan and surrounded by boiling water to the level of the custard mix, then placed in an oven preheated to a given temperature. A thermometer was suspended in one of the four cups. The custards were baked to an internal temperature of 190°F. (88°C.) and the cups were removed to racks to cool. After cooling to about 104°F. (40°C.), they were placed in a refrigerator and allowed to cool further to about 54°F. (12°C.) before they were tested.

Objective and Subjective Tests. The *p*H value of each lot of milk was taken by means of a Beckman Model G *p*H meter.

The crust was carefully removed from three cups of the custard (the thermometer cup was not used for these tests) after which the relative firmness was determined by means of a Precision Penetrometer (Food Model No. 3512) with the aluminum cone (No. 3527) released for 5 seconds.

The custards from two of these cups were carefully turned out on weighed filter papers (diameter 18.5 cm.) placed on plates, and were allowed to stand at room temperature for 1 hr. The amount of drained liquid absorbed by the filter paper was determined by weighing after the custard was carefully removed.

The custard in the third cup was turned out on a plate and scored by two judges on a four-point scale for: consistency, porosity, texture, tenderness, and sheen.

Statistical Analysis of the Data. Analyses of variance (11) were made for each characteristic measured either by objective tests or subjective scores.

RESULTS AND DISCUSSION

The custards made from the two kinds of milk differed in appearance regardless of formula, preheating temperature, or baking temperature. The crusts of the nonhomogenized milk custards baked at 325°F. (163°C.) and 350°F. (177°C.) were thin and delicately browned; those of the homogenized milk custards were thicker, less brown, and usually cracked. However, at a baking temperature of 400°F. (204°C.), the crusts of custards made from the nonhomogenized milk more closely resembled those of the homogenized-milk custards.

The homogenized-milk custards were usually scored lower in consistency, tenderness, and texture. They were always lighter in color, less translucent,

[4] Pyrex No. 462.

TABLE 2

*Average values of objective measurements and subjective scores for baked custards made with nonhomogenized and homogenized milks**

VARIABLE	MEASUREMENTS AND SCORES†						
	Penetrometer reading	Drainage	Consistency	Texture	Tenderness	Porosity	Sheen
Milks							
	0.1 mm.	*gm.*	*points*	*points*	*points*	*points*	*points*
Nonhomogenized	244	3.19	3.6	3.8	3.7	2.5	3.2
Homogenized	255	2.69	2.8	2.2	2.9	2.7	1.5
Formulas							
Nonhomogenized milk							
Formula I	247	3.12	3.3	3.9	3.8	2.7	3.3
Formula II	241	3.27	3.9	3.7	3.6	2.7	3.1
Homogenized milk							
Formula I	261	2.53	2.5	2.2	3.1	2.6	1.6
Formula II	249	2.84	3.1	2.1	2.8	2.4	1.5
Temperatures of Preheated Milks							
Nonhomogenized milk							
122°F. (50°C.)	249	3.81	3.2	3.5	3.6	1.1	2.9
194°F. (90°C.)	242	2.99	3.8	3.9	3.9	3.2	3.6
203°F. (95°C.)	241	2.78	3.9	3.9	3.7	3.9	3.1
Homogenized milk							
122°F. (50°C.)	263	2.65	2.1	2.0	3.0	1.1	1.5
194°F. (90°C.)	252	2.76	2.9	2.1	3.0	3.0	1.5
203°F. (95°C.)	250	2.65	3.5	2.4	2.8	3.5	1.6
Oven Temperatures							
Nonhomogenized milk							
325°F. (163°C.)	243	3.17	3.6	3.9	3.9	2.9	3.4
350°F. (177°C.)	245	3.27	3.8	4.0	3.8	2.8	3.1
400°F. (204°C.)	245	3.14	3.5	3.5	3.5	2.4	3.0
Homogenized milk							
325°F. (163°C.)	251	2.59	3.0	2.2	3.0	2.8	1.6
350°F. (177°C.)	256	2.62	2.8	2.3	2.9	2.7	1.5
400°F. (204°C.)	257	2.85	2.6	2.0	2.8	2.1	1.5

* Since the effect of any one of the four variables—milks, formulas, temperatures of preheated milks, and oven temperatures—studied was found to be practically the same regardless of the level of the other three, only averages concerned with the main effects of the four variables are given.

† Scoring done on four-point scale, with 4 the most desirable.

and had less sheen than the corresponding custards made from nonhomogenized milk. These last named differences were similar in many respects to those observed in puddings and rennet desserts made with the two kinds of milk (7).

The average values of the measurements and scores for the custards are presented in Table 2. Although there were only two replications of the series, the results indicate certain relationships (or lack thereof) among the variants.

The analyses of variance showed that the variation due to the kind of milk was highly significant for all of the characteristics of the custards measured or scored except porosity (Table 3). It may be noted that milk was the only factor which significantly affected the sheen.

As might be expected, the custards made from Formula II, having the higher percentage of egg, were somewhat firmer than those made by Formula I, as indicated both by the penetrometer readings and the consistency scores. The formula was also a factor in the amount of drainage and tenderness.

The temperature to which the milk was preheated affected firmness (penetrometer readings and consistency scores), amount of drainage, texture, and particularly the porosity of the custards. In all cases in which the milk was preheated to only 122°F. (50°C.), there were many small bubbles throughout the custards. A few bubbles, larger in size, were observed in some of the custards baked at 400°F. (204°C.) from milks preheated to 194°F. and 203°F. (90°C. and 95°C.), but, in these instances, the porous

TABLE 3

Significance of the differences in the characteristics of the baked custards made from homogenized and nonhomogenized milk

VARIABLE	CUSTARD CHARACTERISTICS						
	Penetrometer reading	Amount of drainage	Consistency	Texture	Tenderness	Porosity	Sheen
Kind of milk	**	**	**	**	**	—	**
Formula	**	**	**	—	**	—	—
Preheating temperature	**	**	**	*	—	**	—
Oven temperature	**	—	—	*	—	**	—

* Significant with 5 per cent probability.

** Significant with 1 per cent probability.

structure more closely resembled that observed in overbaked custards.

The oven temperature influenced to a certain extent the penetrometer readings, texture, and porosity (Table 3); however, as pointed out above, porosity was influenced to a far greater degree by the preheating temperature of the milk.

The direction of the change in the scores and measurements as affected by formula, preheating temperature, and oven temperature was much the same for both kinds of milk.

Within the limits of this study, it seemed that neither of the two formulas was outstandingly better than the other. Although the custards prepared by Formula I were somewhat less firm than those made by Formula II, they were of a desirable consistency and were equally good in other characteristics considered. Consequently, for practical use it would seem that Formula I is satisfactory and convenient. It calls for the proportions of the equivalent of one egg to 1 c. milk, measurements easily made and commonly used in home recipes.

In general, a preheating temperature of about 194°F. (90°C.) seemed preferable to either of the two other temperatures. The structure of the custards made with milk preheated to 122°F. (50°C.) was less desirable, and the increased time required to preheat the milk to 203°F. (95°C.) did not seem justified by any appreciable improvement in the quality of the finished product.

An oven temperature of 350°F. (177°C.) had advantages over the other two. A temperature of 325°F. (163°C.) required an unduly long baking period; a temperature of 400°F. (204°C) produced a custard less desirable in appearance (particularly with nonhomogenized milk) and reduced the baking time so much that the custard could easily be overcooked.

On the whole, the homogenized-milk custards were not considered as desirable from the standpoint of appearance, texture, tenderness, and sheen as were the nonhomogenized-milk products—a fact which probably accounts for published suggestions that homogenized milk should not be used for baked custards (1, 2).

A satisfactory explanation for the differences in the characteristics of the custards from the two kinds of milk is not at hand. The *p*H values of the two kinds of milk were similar, hence were not a cause for differences. Perhaps future studies may indicate whether the difference is due to such factors as the nature of the membranes of the fat globules (12) or to some other differences brought about by the homogenization of the milk.

SUMMARY

Baked custards were prepared from homogenized and nonhomogenized milk. The study included the use of two formulas which differed in: (a) the proportions of sugar and egg to milk; (b) temperatures for preheating the milk; and (c) oven temperatures.

The finished custards were tested for relative firmness with a penetrometer, and for syneresis by the weight of serum drained during 1 hr. of standing. They were scored on a four-point scale for: consistency, porosity, texture, tenderness, and sheen.

Although the homogenized-milk custards were not altogether unacceptable, they were judged to be less desirable than those made from nonhomogenized milk on the factors of appearance, texture, tenderness, and sheen. The penetrometer readings indicated that the homogenized-milk custards were less firm than those made from nonhomogenized milk; and in most instances they showed less serum separation after standing for 1 hr.

The direction of the change in the scores and measurements as affected by formula, preheating temperature of the milk, and oven temperature was in general similar for both kinds of milk.

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BIOGRAPHICAL NOTES ON THE HISTORY OF NUTRITION

James Cook—November 1728–February 13, 1779

The Copley medal of the Royal Society was awarded to Captain James Cook, R.N., for his achievement of a three-year voyage around the world without a death from scurvy. This was a feat worthy of such recognition. Just thirty years before, Lord Anson had returned from a voyage (1740) around the world with only one-third of his men, the others having died of scurvy. Yet Cook did not know the real cause or means of prevention of scurvy. He wrote to Sir John Pringle, "with plenty of fresh water and close attention to cleanliness, a ship's company will seldom be much afflicted with scurvy though they should not be provided with any of the antiscorbutics before mentioned." Apparently Cook either did not know or was not impressed by the work of James Lind. Nevertheless, Cook's name has gone down in history for his achievement. His contribution to the preservation of the health of sailors was a real one, although he failed to advance nutritional knowledge of "the scourge of the sea." James Cook also merits recognition as a natural leader of men, a great and courageous explorer and navigator, and an able administrator. His explorations added to scientific knowledge and to the growth of the British Empire.

He was born in Yorkshire in 1728, the son of an agricultural laborer. He received some education at the village school, and at twelve was apprenticed to a shopkeeper but quarrelled with his master and was apprenticed to a ship owner. He joined the Navy at the outbreak of the Seven Years War (1755) and sailed to America. During the siege of Quebec, he was in command of a small vessel responsible for the charting of the channel of the St. Lawrence River.

On his return to England, he was given command of the *Endeavour* and sailed for the South Seas (1768–71) on a scientific expedition to observe the transit of Venus as seen from Tahiti and to explore the coast of New Zealand and Australia. He circumnavigated the globe, and but one-third of the crew of eighty-four on this small 368-ton vessel died from dysentery and scurvy.

He sailed again around the world (1772–75), this time with two ships under his command. He penetrated far south into the Antarctic Ocean and disproved the existence of the supposed great southern continent. On this voyage only one man died, and not from scurvy. This notable contribution to naval hygiene received acclaim. Cook's success in maintaining the health of his men was due to his belief in absolute cleanliness on board, keeping clothing and bedding dry, providing clean drinking water and fresh vegetables (especially celery and scurvy grass) whenever they touched land. In addition, he used sauerkraut which had been shown to be beneficial in the Dutch navy, sweet wort brewed from malt, and a "rob" of oranges and lemons; he did not think highly of the latter, however.

In 1776, he started out on his last voyage to search for a northwest passage from the west from the Pacific to the Atlantic. This passage could not be found, and the ship turned to the Hawaiian Islands. Through misunderstandings with the natives, Cook was killed on February 13, 1779.

James Cook was married in 1762 to Miss Batts of Barking, England. They had six children, three of whom died in infancy. His widow lived to the age of ninety-three.

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Quantity White Sauce Mix[1]

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WHEN the number of customers in an eating establishment varies from day to day it is difficult to determine the exact amount of food to prepare. Often substitutions are needed to replace an item on the menu which has been exhausted. Quick substitute dishes, such as creamed vegetables on toast, rarebit, or left-over meat à la king require a white sauce base.

The conventional method for making white sauce involves the preparation of a roux, that is, a mixture of equal amounts of melted fat and flour, the heating of milk to 90°C. (194°F.), the incorporation of the roux into the hot milk, and the cooking of the total mixture to doneness. In an emergency, even if the roux is kept on hand, the heating of cold milk is time-consuming. If the milk is not heated to 90°C., as may well occur when time is pressing, and the roux is added at an early stage, the resulting sauce will be thinner in consistency than desired. Failure of the sauce to come up to standard consistency is caused by the slower rate of heating the starchy thickener (1). When the white sauce is too thin, the cook in an attempt to correct the situation may add more roux. All may go well; but, by the time the newly-added starch is fully gelatinized, the sauce may be too thick and then requires thinning. In view of the need for an efficient and accurate method of preparing white sauce "in a jiffy," it was thought that a prepared mix with directions for quantity use would answer that need, and a project was started to develop such a mix.

The purposes of the present study were to: (a) prepare sauce mixes in quantity, using pastry flour[3] and all-purpose flour; (b) determine the amount of each mix required to obtain standard thin, medium thin, medium, medium thick, and thick white sauces; and (c) determine the shelf life of the mix.

EXPERIMENTAL PROCEDURE

Standard institutional food service equipment was used in the preparation of the mix and sauces. Nonfat dry milk solids, two types of flour, and a combination of hydrogenated vegetable shortening and margarine were used in the mixes. Some mixes were made with all-purpose flour and some were made with pastry flour.[4] To one part of flour, two parts each of fat and milk solids were used.

In preliminary experiments, margarine was used as the only fat. The texture of the sauces prepared from this mix was not smooth, and the flavor of margarine was too apparent to please the judges. Thereafter, in all mixes half of the fat by weight was margarine and half was hydrogenated vegetable shortening.

Preparation of the Mix

A 30-qt. bowl was used for the 15-lb. batches and a 60-qt. bowl with an apron was used for the 30-lb. batches. In preliminary experiments, a four-speed electric mixer with whip attachment was used but was found cumbersome because frequent scraping was required. A pastry blender attachment was found to be more satisfactory and was used throughout the experiment. The flour and milk solids were blended on low speed for approximately 30 seconds. The fat was added and mixed on low speed until the dry ingredients and fat were intimately combined; at this stage, the color of the mix changed rapidly to a definite yellow. Throughout the study, this criterion was used to determine the end point of mixing. The mixing time was approximately 90

[1] This study is a part of a larger project titled, "The Quality of Products Prepared from New York State Soft Wheat Flour: C. The Effect of Variations in Quantity Formulae and Procedures." Received for publication April 9, 1954.

[2] Preliminary laboratory work was done by Susan Finn and Diane Martin, senior students.

[3] New York State soft wheat flour.

[4] While this project was under way, a pamphlet entitled "Magic White Sauce Mix" with formula for household use and procedures for preparing a mix and sauces from the mix was released (2). The formula and method suggested were tested, but were found unsuitable for quantity use.

Preparation of White Sauce Mix

Quantity: 30 lb. (will make 12 gal. white sauce)
Equipment: electric mixer; 60-qt. bowl with apron; pastry blender attachment.
Ingredients

12 lb. nonfat dry milk solids
6 lb. flour
6 lb. margarine*
6 lb. hydrogenated shortening

Method

Mix milk powder and flour 30 seconds at low speed. Add fat and blend on low speed approximately 90 seconds. Stop when mixture appears yellow in color and crumbly in texture; overmixing results in a compact mix.

Preparation of Sauce from Mix

Quantity: 1 gal. (approximately)
Ingredients

1 gal. hot water drawn from faucet. Mix as specified in Table 1.

Method

Heat water further to 90°C. (194°F.) on range or in a bain-marie. Weigh or measure amount of mix required for consistency desired. Break up lumps, if any. Add mix to hot water and beat vigorously for approximately 90 seconds. Cover. Stir occasionally to insure good distribution of heat. Cook until taste of raw starch has disappeared—approximately 30 min.

Storage of Mix

Place freshly prepared mix in containers which have been thoroughly washed and sanitized and cover tightly. Store bulk of mix in a cool place, not over 21°C. (70°F.) Store amount needed for one week in kitchen. Storing for longer than eight weeks is not recommended.

* Butter can probably be used; margarine was used throughout this study.

seconds when all-purpose flour was used and slightly less for the pastry flour mixes.

Preparation of the Sauces

All white sauces were prepared in 2-gal. aluminum "bootlegs"[5] in the bain-marie. The level of the rapidly boiling water was kept as high as possible. One gal. hot water, 60° to 70°C. (140° to 158°F.), was drawn from the faucet and heated to 90°C. (194°F.) by direct heat or in the bain-marie.

The mix was incorporated by beating vigorously with a French whip until the lumps were broken up and the sauce was smooth. Beating time was approximately 90 seconds or somewhat longer for the mixes that had been stored for several weeks.

The sauces were covered. They were stirred gently every 10 min. to insure even distribution of heat; they were considered done when they no longer tasted of raw starch (3). Cooking times were recorded.

To establish the amount of mix needed to obtain sauces of various viscosities (1), a series of sauces was prepared in which the weight of mix varied from 1 lb. 8 oz. to 3 lb. 12 oz. per gallon of water.

During this six-week experiment, the mixes were held in 50-lb. tin cans at kitchen temperature.

Medium sauces were prepared from two freshly-made mixes, one using pastry flour and the other, all-purpose flour. Sauces were also prepared from a stored mix (made with all-purpose flour) which had been held for twelve weeks at 16° to 21°C. (61°–70°F.). For comparison, sauces were also made by the roux method from whole fresh milk and from reconstituted nonfat dry milk solids.

Viscosity was determined by linespread method (4, 5) with equipment described by Longrée (1).

[5] Measurements: height, 8½ in.; bottom diameter, 9⅛ in.; top diameter, 10½ in.

In most instances, five experienced judges tasted representative sauces for consistency, flavor, and general acceptability. For final acceptability tests, eight judges tasted the sauces.

Shelf Life

Mixes were stored in 50-lb., tightly covered tin cans which were washed by hand in hot soapy water but not steamed. Some batches were stored in the kitchen at 19° to 27°C., average 22°C. (66° to 81°F., average 72°F.), and some in a basement storeroom at 16° to 21°C., average 18°C. (61° to 70°F., average 64°F.). Refrigeration at 2° to 9°C., average 6°C. (36° to 48°F., average 43°F.) was tried in preliminary tests and found impractical; the mix was cold when used and lowered the temperature of the water so much that the resulting sauce was thinner than standard. The mixes were stored for various lengths of time, the longest being twelve weeks. However, it seems unlikely that a food establishment with power equipment to make 30-lb. batches of mix would wish to store a mix as long as twelve weeks; it must be remembered that 30 lb. mix yields only about 12 gal. medium sauces. At intervals, samples were removed from the stored mixes, made into medium sauces, tested for viscosity, and scored for flavor.

RESULTS AND DISCUSSION

Amount of Mix

Ease of Incorporating Mix. The mixes for thin, thin-medium, medium, and thick-medium sauces were incorporated easily into the hot water. Within the range of amounts of mix used, it was impossible to prepare a sauce thicker than a standard medium-thick sauce with all-purpose flour mix. It was difficult to incorporate the large amount of all-purpose flour required for a thick sauce and con-

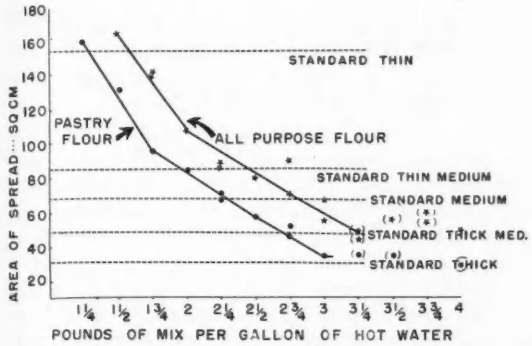

FIG. 1. *Viscosity (area of spread) of white sauces prepared from various amounts of mix added to 1 gal. hot (90°C., 194°F.) water. The linespread values in parentheses may be questioned because in making the sauces, excessive beating was necessary in order to incorporate the mix; the beating may account for lower viscosity readings.*

siderable beating was necessary. In general, the pastry flour mix was somewhat easier to incorporate because of less tendency to lump.

Viscosity. The viscosities of the sauces prepared with various amounts of mix are shown in Figure 1. At all levels, more all-purpose flour mix than pastry flour mix was required to achieve comparable viscosity. With both types of mix, amounts in excess of 3 lb. per gallon of water did not appreciably change the viscosity of the resulting sauces. By comparing the linespread values of sauces made from mix with those of standard sauces as determined in previous work by Longrée (1), it was found that the weights and approximate amounts of mix given in Table 1 are necessary to obtain standard sauces.

Palatability. The judges rated all sauces acceptable or very acceptable except the thin sauce made with the mix containing pastry flour. It was rated low because of "leanness." The somewhat "lean" flavor may be explained by the fact that the content of milk solids in that sauce was fairly low. Since pastry flour thickens more than all-purpose flour, less of the pastry flour mix was needed. The amount of milk solids present in the thick sauces was higher but in the thinner sauces was lower than in a sauce made by the roux method—a fact which, from the nutritional viewpoint, should be considered. However, since in institutional food service, nearly equal amounts of thick and thin sauces are used, this difference would be somewhat equalized.

Storage of Mix

Viscosity. The viscosity of the sauces prepared from all mixes varied only slightly up to eight weeks' storage (*Fig.* 2). Thereafter, a slight increase in linespread value was noted. This decrease in viscosity was more pronounced in the sauces made with the all-purpose flour mix. After eight weeks of storage, the mixes appeared drier and more compact than when freshly made. It became necessary to break up some large lumps which formed, and extra beating was needed to incorporate the mix into the hot water. Longer beating time may account for the decrease in viscosity.

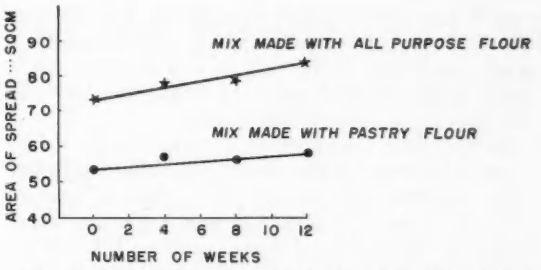

FIG. 2. *Viscosity (area of spread) of sauces prepared from 2 lb. 8 oz. mix stored for twelve weeks.*

TABLE 1

Weight and measure of mix to add to 1 gal. water to obtain standard sauces

TYPE OF WHITE SAUCE	ALL-PURPOSE FLOUR MIX		PASTRY FLOUR MIX	
	Weight	Approximate measure	Weight	Approximate measure
Thin	1 lb. 12 oz.	6 c.	1 lb. 4 oz.*	4½ c.*
Thin-medium	2 lb. 8 oz.	8½ c.	2 lb.	7 c.
Medium	2 lb. 12 oz.	9½ c.	2 lb. 4 oz.	8 c.
Thick-medium	3 lb. 4 oz.	11 c.	2 lb. 12 oz.	9½ c.
Thick	**	**	3 lb.	10½ c.

* Sauce tasted too "lean" to be acceptable.

** It was impossible to incorporate sufficient amounts for a thick sauce.

Palatability. In general, sauces made from the mixes stored up to eight weeks were rated "very good" to "excellent." Sauces were also rated "very good" to "excellent" after the mix had been stored twelve weeks in the storeroom, but ratings dropped below "very good" for sauces made from mixes kept in the kitchen longer than eight weeks. Contamination with molds was detected in some mixes stored in the kitchen longer than eight weeks, and judging was discontinued in such cases.

The results indicate that the shelf life of the mix in the storeroom (16° to 21°C.) was twelve weeks and in the kitchen (19° to 27°C.), eight weeks. From the practical viewpoint, these periods are longer than the mix would be stored under average conditions of institutional food preparation. A 30-lb. batch of mix is not likely to be stored even eight weeks, since only 12 gal. medium white sauce can be made from this amount.

Cooking Time, Cost, and General Acceptability

Cooking Time: Average length of total cooking time for a 1-gal. batch of sauce made from the mix

was 36 min.; this included the heating of water from 60°–70°C. to 90°C. which took approximately 6 min., regardless of whether it was heated on the range or in the bain-marie, providing the water in the bain-marie was boiling rapidly.

Longrée (1) reported that a 1-gal. batch of medium sauce made from reconstituted skim milk and roux required an average total cooking time of 47½ min.. This included the heating in the bain-marie of freshly reconstituted skim milk to 90°C., which took an average of 19½ min. but did not include the time required to reconstitute the milk from the powder. Subsequent tests were carried on in this laboratory to determine the time required to heat milk from refrigerator temperature (6°C., 43°F.) to 90°C. It took an average of 23 min. to heat the milk and a total cooking time of 53 min. for a 1-gal. batch.

Both time and convenience are of importance in emergency situations.

Cost: The main difference in cost between the sauces made from the mix and those made by the roux method with reconstituted dry milk solids lies in the price of the extra fat incorporated in the mix. At present fresh milk prices, sauce made from the mix is considerably less.

General Acceptability. Sauces made from freshly-made mix and sauces prepared from reconstituted dry skim milk scored similarly. They were rated "acceptable" to "very acceptable." Sauces made from whole fresh milk scored slightly lower. When a mix stored for twelve weeks was used, the scores were slightly lower than those for the sauce made from reconstituted dry skim milk, but they were higher than for sauces made from fresh whole milk. Most of the judges were accustomed to the sauces made with reconstituted dry skim milk. Some felt sauces made with whole fresh milk lacked "body."

SUMMARY

White sauce mixes for use in institutional food service were prepared from flour, milk solids, and fat. Mixes made with all-purpose flour were used for standard thin, medium-thin, medium, and medium-thick sauces; those made with pastry flour were in addition used for thick sauces. Because of its greater thickening power, less pastry flour mix was required at each level. Since pastry flour is at present less expensive than all-purpose flour, the former mix is more economical to use. Sauces made with the mixes were found to cost less than those made with whole milk and roux but were slightly more expensive than those made with reconstituted nonfat dry milk solids and roux. The white sauces made from the mix were judged quite acceptable and are recommended because of ease of preparation, speed, and predictability.

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Insecticide Residues Not Harmful to Foods

"No hazard or threat to the nation's health" results from the use of insecticides chlordan and heptachlor on foods, asserted Victor C. Smith, Velsicol Corporation, Chicago, in talking before the American Chemical Society in September. Work done by Mr. Smith in cooperation with Eugene P. Ordas and Charles F. Meyer of the same company has shown that these insecticides are safe when applied to food products in storage as well as in the field.

Mr. Smith pointed out that, "judging by the results, technical heptachlor and technical chlordan, when used to prevent wire worm attack on potatoes and applied as recommended by state and federal entomologists, have been found to leave no harmful residues. Similar results were found when such other crops as cabbage, celery, carrots, beets, turnips, and strawberries were treated during the growing season, sampled at harvest time, and chemically analyzed."

A special series of tests, using samples of thirty-five different crops for livestock and human feeding from every state of the Union and several Canadian provinces, were conducted, in which as much as two hundred times the recommended or practical dosages of technical heptachlor and technical chlordan were used. According to Mr. Smith, "In a few cases, such as on potatoes, a measurable but minute insecticide residue was found on the surface. However, it was found that this residue could be largely removed by washing or peeling, and during cooking practically all traces of it disappeared."

The results of these chemical tests were verified with bioassays, using the common housefly and mosquito larvae. In practically all cases, "excellent correlation" was obtained.

Mr. Smith feels that "the safety of technical chlordan and technical heptachlor, when applied to a large variety of food and forage crops for insect control, has been proved by hundreds of chemical and biologic tests."

The Dietary Department of the Future— A Scientific Laboratory

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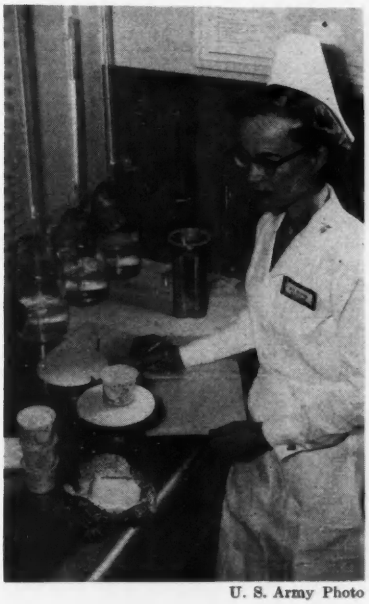
Could the hospital dietary department function in a more scientific capacity, working hand-in-hand with the medical, surgical, chemical, biologic, and pathologic fields, where correlations can be made in the findings obtained from these laboratories? We know that in diseased and surgical conditions, digestion, metabolism, and utilization of food are greatly altered—to what degree, however, has not been determined.

Could we study diets as consumed by these patients, observing carefully the methods of preparation and determining the advantages of each? What do we really know about baking vs. grilling, broiling, and frying? For example, can patients with ulcers have grilled steaks instead of broiled or baked steaks? Could we study the effectiveness of therapeutic diets as consumed by the patient, in terms of laboratory findings, acceptability, gain in weight, and length of convalescence? Could we study the role of proteins, fats, and sodium in meal combinations, in general and therapeutic recipes, and from the standpoint of quality, quantity, utilization, economy, and palatability? On analysis, we might find that: (a) a "fat-free" mashed potato, having only 1 or 2 gm. less fat would not warrant special preparation, or (b) a tender, flaky pie crust would be no less digestible than a muffin baked at the same temperature. Could we study the methods and equipment used by personnel, as well as the architectural layout, in handling and preparation of food from the time it is received in the hospital until it is eaten by the patient, in terms of nutritive value and utilization?

No doubt many of you will immediately consider as preposterous a scientific approach to hospital dietetics and say that dietary employees are not of a caliber to participate in such a program. I hasten to answer: Is it not time that we stopped making comparisons of the commercial and industrial fields with dietetic feeding? These fields are concerned almost completely with profit and the feeding of transient and normal individuals.

Hospital dietetics, on the other hand, has a special mission—to aid the sick—and every effort should be made to realize this function. To study improvements by the scientific method to some would appear impossible with the dietary personnel. Nevertheless, employees with a high school education, when motivated and shown how to carry through and analyze their duties in the light of contributing to the patient's welfare and to science, if told in the language they understand, will find such work stimulating and interesting. As the X-ray technician is taught the technique of taking X-rays without having to analyze the finished film, so can dietary personnel be taught the methods of weighing, preparing, tabulating, and calculating data on an accurate, scientific basis.

Today a more scientific approach to the study of cooking methods, food combinations, and nutritional accounting is possible because a more constant nutrient content of food can be maintained. Reproducible results are now possible, due to such developments as: increased use of frozen food lockers and walk-in freezers; use of prefabricated meats; availability of frozen fruits and vegetables—with knowledge of their source and origin; and greater keeping quality of milk, cheese, eggs, butter, and even of fresh fruit and vegetables, due to improved refrigerating facilities. Thus, short-term studies can be conducted with much less effort than formerly.



U. S. Army Photo

The fact that each hospital is coping with similar diseases influenced by the variables of age, sex, height, stature, and equivalent strata of society will enable each dietary department to correlate its findings and results with other dietary departments, thereby coordinating and advancing better therapeutic treatment for specific diseases.

FERN W. GLEISER—President of The American Dietetic Association

Editorial

FERN W. GLEISER

President The American Dietetic Association

Fern W. Gleiser, the genial new President of The American Dietetic Association, brings to the Association a warm and friendly personality and a keen professional interest, as well as a thorough understanding and knowledge of the aims and purposes of the organization. Throughout most of her professional life she has had close contact with The American Dietetic Association.

She has been a member of the Finance Committee, the Nominating Committee, Administrative Approval Committee, and she was Chairman of the Special Committee on Professional-Economic Status of the Dietitian. Miss Gleiser has also served as a Delegate to the House of Delegates and a Delegate-at-Large, as well as Treasurer of the Association and Speaker of the House of Delegates. She has been President of the Iowa Dietetic Association and Vice-President of the Illinois Dietetic Association.

Though born in Iowa, Fern Gleiser spent most of her early life in the Palouse country of eastern Washington. She attended Willamette University at Salem, Oregon and the University of Washington where she was graduated in 1924 with a B. S. degree. After graduation from the University, she became Assistant Manager of the University Commons, 1924–25. To further her career in institution management, she became Instructor and Assistant Director of the Residence Halls at Oregon State College from 1925–28. She then went to Teachers College at Columbia University as Instructor in Institution Management and obtained her master's degree in 1930. She was Associate Professor of Institution Management at Drexel Institute the following year, after which she became Professor and Head of the Department of Institution Management at Iowa State College at Ames.

In addition to her teaching and the direction of the graduate work at Iowa State College, Professor Gleiser was also Director of the Student Cooperative Residence and Dining Hall Program. During the war, she was Director of the Navy Cooks' and Bakers' School. While at Iowa State College, she also served on the Executive Committee of the Board of Directors of the Iowa State College Memorial Union Corporation.

In 1944, Miss Gleiser became Professor of Institution Economics and Management at the University of Chicago. She is the first woman to be appointed to a professorship in the School of Business at the University of Chicago. The affiliation began when the National Restaurant Association made a grant to the University of Chicago of some $100,000 to establish a program in restaurant administration. Miss Gleiser was asked to assist in its development, thus becoming associated with the first restaurant administration program established in a university.

She is a member of the following professional and honor societies: Omicron Nu, Phi Upsilon Omicron, and Beta Gamma Sigma. She is a member of the Illinois Home Economics Association, the American Home Economics Association, the National Restaurant Association, and the Chicago Nutrition Association as well as the American Association for the Advancement of Science. Her publications include articles in the JOURNAL OF THE AMERICAN DIETETIC ASSOCIATION and other professional publications.

With this rich background of experience, her sincere interest in people, and her high professional standards and enthusiasm, The American Dietetic Association under the leadership of Fern W. Gleiser should reach new heights of achievement. *—Lenore M. Sullivan, Professor of Institution Management, Iowa State College, Ames.*

Mary Swartz Rose Fellowship

In 1948, the Nutrition Foundation, Inc., made a grant to The American Dietetic Association, establishing the Mary Swartz Rose Fellowship which annually provides $1000 for graduate study and research in nutrition or allied fields. The Fellowship honors an acknowledged pioneer in the field whose accomplishments personalize the spirit of the award.

Provisions of qualification for the Mary Swartz Rose Fellowship are:

Applicants must (a) be members of The American Dietetic Association; (b) have ranked in the upper quartile of their respective graduating classes, and have majored as undergraduates in a field closely related to that in which the Fellowship is sought or have gained equivalent training later; and (c) show promise of making a valuable contribution to the profession.

The recipient of the Fellowship is selected by the Awards, Scholarship and Loan Fund Board of The American Dietetic Association, a six-member board appointed by the Association's President, subject to the approval of the Executive Board. The President and President-Elect of the Association are ex-officio members of this Board.

Nominations of candidates shall be accompanied by adequate evidence of their training and ability to pursue their plans in a satisfactory manner. It is expected that applicants interested in newer aspects of nutrition or allied fields shall receive consideration.

Nominations for the Fellowship and all supporting recommendations shall be in the hands of the Executive Secretary of the Association not later than February 15, 1955. Selection of the recipient and notification of the candidate chosen shall be made not later than April 1. Unsuccessful candidates shall be notified at the same time.

Lydia J. Roberts Essay Award

In 1951, the Gerber Products Company made a grant to The American Dietetic Association offering a $500 annual prize for five years for the best essay on a subject in the field of the history of nutrition. This award was named for Lydia J. Roberts in honor of her outstanding contributions to the nutrition of children. Topics for the next two years' contests are to be as follows:

1955—*Nineteenth Century Leaders in Infant Feeding*

1956—*The History of Nutrition Education Programs for Children in the United States*

RULES GOVERNING THE AWARD

The rules governing the Award are as follows:

1. The Award shall be open to: any graduate student of nutrition in an accredited university; any dietetic intern in an internship approved by The American Dietetic Association; or any member of the Association.

2. Essays shall be typed in triplicate, double spaced, and shall not be less than 15 or more than 20 pages in length, exclusive of references.

3. Essays accompanied by separate vita of contestant shall be received by the Executive Secretary on or before June 1 of each year.

4. All essays shall become the property of The American Dietetic Association, with publication rights in the JOURNAL or elsewhere as the Association deems advisable.

5. Essays shall be judged by a committee of three persons, to be appointed by the Executive Board of The American Dietetic Association. The names of the judges shall not be made public.

6. Essays shall be judged on the basis of original investigation and interpretation of source material; coverage of subject and final conclusion; and on organization, literary style, and documentation.

7. The decision of the judges shall be final. No award shall be made in any year that the judges consider no essay merits an award.

8. The Award shall be presented at the Annual Meeting of The American Dietetic Association or other occasion designated by the Executive Board.

AWARD RECIPIENTS

The first recipient of the Lydia J. Roberts Essay Award was Felisa J. Bracken, who received in 1952 the $500 honorarium for her essay on "Infant Feeding in the American Colonies." This essay was published in the April 1953 issue of the JOURNAL. Winner in 1953 of the Award was Dorothy Lefebvre Jefferson, whose essay on "Child Feeding in the United States in the Nineteenth Century" was chosen as best by the judges. This essay appeared in the April 1954 issue of the JOURNAL, page 335.

In 1954, recipient of the Award is Alice L. Wood, New York State Institute of Agriculture, Cobleskill, New York. Excerpts of her essay on "The History of Artificial Feeding of Infants" were presented at the 37th Annual Meeting of The American Dietetic Association in Philadelphia. Plans are now being made for publication of the essay in the JOURNAL.

A. D. A. Loan Fund

To encourage graduate study in the field of nutrition and dietetics, The American Dietetic Association maintains a Loan Fund for Graduate Study. Members planning to enroll in graduate schools are urged to make use of this fund. Policies concerning these loans are as follows:

Eligibility: Any person who has been an active member of The American Dietetic Association for at least two years and wishes to pursue graduate study leading to an advanced degree may apply for a loan. No more than three applicants from any one state or territory can be considered.

In 1952, the Awards, Scholarship and Loan Fund Board adopted a new policy, making home economics graduates about to enter approved dietetic internships eligible for loans, if funds in the Graduate Loan Fund exceed by a wide margin the demands of members seeking assistance for graduate study.

How and When to Apply: Applications for loans should be made on special forms available from the A.D.A. office in Chicago. Application must be accompanied by full credentials, including transcript of college credits, photographs, letters of reference, and a personal letter stating plans for graduate work, time and place contemplated, degree sought, and future plans. Applications must be endorsed by a state officer or delegate, and by one other Association member familiar with the applicant's professional work.

Special regulations pertaining to dietetic interns applying for loans may be found on page 35 of the *Annual Reports and Proceedings 1951–1952, The American Dietetic Association.*

Amount of Loans, Interest, Repayment, and Security: Loans for graduate study in any amount up to $1000 may be made to qualified applicants, the total loans or installments to be adjusted according to circumstances. Loans to dietetic interns shall not exceed $500.

Interest on loans shall be charged at the rate of 2 per cent annually, beginning one year from the date of the loan. Repayment of principal should be made as soon as possible to allow other members of the Association to benefit from the loan privilege. It is expected that all loans will be repaid within three years from the date of the loan.

Security for loans may be provided by promissory notes. Loans made to dietetic interns are to be co-signed by a responsible person, or may be secured by a life insurance policy naming A.D.A. as the beneficiary. Terms of loans may not be uniform, but may vary according to the facts in particular cases.

Selection of Loan Recipients: Final selection of recipients will be made by the Awards, Scholarship and Loan Fund Board of the Association. The names of applicants and recipients of loans may be kept confidential if so requested.

M. FAITH MCAULEY MEMORIAL LOAN FUND

Contributions from members of the Illinois Dietetic Association totalling approximately $1200 have been turned over to The American Dietetic Association to establish the M. Faith McAuley Memorial Loan Fund to help dietitians doing graduate work in food administration.

Applications for use of the M. Faith McAuley Memorial Loan Fund may be obtained from the Executive Secretary, The American Dietetic Association. Regulations governing the granting of loans from this fund are similar to those listed above for the general Loan Fund.

OTHER FINANCIAL HELP

A number of state dietetic associations and approved dietetic internships also offer either scholarships or loans to help dietetic interns during their fifth year of training. To publicize the availability of these loans and scholarships, a committee of the A.D.A. House of Delegates has recently compiled a list of all such financial aids, and copies are now available for 10 cents each from the Association's office.

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Nutrition Program for Older People

Long known as a haven for retired people, St. Petersburg, Florida, abounds with quacks and food faddists because of the prevalence of chronic disease among the elderly population. With the major sources of their information on diet coming from advertising, health food stores, and food faddists, many of these people, unfortunately, have been wrongly influenced in their ideas of foods.

To meet the situation and improve the eating habits of the many older citizens of the community, the nutritionists of the State Board of Health and the local Dairy Council suggested to the city's Gerontology Committee that a nutrition education program on "Food Facts for Folks after Forty" be conducted.

At first, counselling was given on a trial basis to a small group of less than twenty, but as the attendance increased, it was necessary to change the meetings to planned lectures, although considerable time for discussion was still allowed. Interest has been keen, and many have been surprised to find that a diet is not recommended to cure arthritis and that nutritionists do not advise the home-grinding of wheat.

Appealing titles for the lectures have been used to create interest, for instance, "More or Less of You," "Vitamins in Pills—or in Food," and "Meat for All." Guest speakers, including local food editors, have added variety to the meetings, and educational aids, such as visual aids, films, and film strips, have been used effectively.

One device was to prepare and distribute leaflets in which participants could, with the help of the nutritionist, make their own food plans, using the Basic 7 as a guide. In such meal planning, many found that two meals a day—a popular practice in this area—are not sufficient to include all the essential foods.

For one series of 2-hr., weekly meetings, demonstrations of cooking methods were put on by the home service department of a local utility company. One particularly popular demonstration was that of bread-making, using dry milk solids. For this group, a special cook book, "Food after Forty," was also written, which contains meal plans and nutrition hints related to the foods displayed at the lectures.

Those who have helped with this program have found it most rewarding, because of the great interest in nutrition which this age group has shown and the desire expressed by the participants to use the knowledge and improve their eating patterns.—*May McBath, Regional Nutrition Consultant, Florida State Board of Health, St. Petersburg.*

Current Comment

Are You a Hostess to Your Patient-Guests?

Opportunities for Dietitians in Mental Hospitals[1]

PAUL HAUN, M.D.

Assistant Professor of Psychiatry,
Bowman Gray School of Medicine,
Graylyn, Wake Forest College,
Winston-Salem, North Carolina

In a group of dietitians who know all about calories and vitamins and the exact time it takes an egg to travel from a skillet to my mouth, the interest in food is highly professional. In contrast, my own interest is strictly that of an amateur and can be described in medical terms as congenital, persistent, and acute. I cherish and maintain my amateur standing and intend to take full advantage of it whenever I can get near a knife and fork. So long as I can rely on you to produce, I will happily consume. I am perfectly content to remain ignorant of the mysteries of the kitchen, of deep fryers, and of double or even of quadruple boilers. Mine not to reason why, mine but to eat and sigh. Since you are good enough to cook it, I propose to discharge my pleasant duty and consume it.

I am entirely unfitted to speak to you as a dietetic expert. Nor do I have the temerity to consider myself a spokesman for the countless amateurs who eat and drink at your tables. I come, rather, as a solitary but talkative dinner guest who inspects his hostess' kitchen, discusses her domestic help, comments on her choice of grocers, scrutinizes her table linen, and expatiates lengthily on the quality of each dish he is served. We are, of course, concerned with a rather exceptional household today, the mental hospital, and with some of the particular arrangements our dietitian-hostess may feel called on to make for the wide diversity of guests she must entertain.

As the man who comes to dinner and who hopes to carry away memories of a pleasant experience, my anticipatory thoughts would probably run in three channels. First, is my hostess able to serve me a good dinner? Second, will I like it? And third, will the meal be a memorable occasion?

BACKGROUND FOR SERVING A GOOD DINNER

As to her ability to serve a good dinner, it would seem necessary that she be in charge of all the arrangements and that the authority vested in her be commensurate with her responsibilities. I would expect these responsibilities to be adequately defined and sufficiently broad to allow for creative expression of her own ideas. I would expect her decisions to be respected and observed by her subordinates and supported by her administrative superiors until events had demonstrated her inability to deal effectively with her task.

It would seem necessary that she evaluate the skills of all employees in her department and when these fell below acceptable standards, that replacement would ensue. I would think it proper within the range of employment eligibility established by hospital policy that she have the sole authority to select suitable workers for all sections of her department and, most particularly, efficient and temperamentally compatible assistants. It would be essential for her to have a voice in the establishment and periodic revision of a standard table of organization for personnel under her direction. When reductions in force became necessary, she would indicate to the hospital authorities the specific curtailments in dietetic service which would necessarily result.

She would be expected to calculate a realistic annual budget and would be informed of specific administrative action on it in sufficient time to allow her to plan her strategy well in advance, to take full advantage of seasonal prices, to conclude favorable contracts, to schedule vacations for her staff, and to maintain her equipment at a level of maximum efficiency. She would not be expected magically to influence the appetites of those she served in keeping with fluctuating food costs, but would be provided with a contingency fund so that dietary standards would remain constant regardless of price changes.

JUSTIFYING POLICIES RATIONALLY

I would suppose that she would have enough space to receive, inspect, warehouse, process, prepare, cook, distribute, and serve foods in all categories and that this space would be suitable to the purposes intended. I would insist that my hostess have full authority to refuse food shipments which fell below established standards and that in this area of her activities, as in all others, she be immune to political pressures. I would expect that no distinction as to standards or as to need would be made between foods purchased in the open market and those made available from the hospital farm, the hospital dairy, or the varied hospital projects devoted to animal husbandry. To

[1] Presented at the 37th Annual Meeting of The American Dietetic Association in Philadelphia, on October 28, 1954.

make this more precise, I would have no assurance that my hostess was able to serve me a good meal if the menu was determined not by today's appetite, but by the threat of spoilage for 18,000 lb. of farm produce. I would be profoundly uncertain if the appearance of pork sausage at breakfast always heralded the fall slaughtering at the hospital abattoir and meant that 190 swine carcasses had to be disposed of before any beef could again be cooked.

I would attempt to reserve judgment, but I would have to admit to gnawing doubts and a kind of you-have-got-to-prove-it-to-me attitude if I found her seasonally engaged in wholesale canning, curing, pickling, and preserving of the hospital's agricultural products. I would wonder about the economics of the whole affair, about governing motivations which were possibly irrelevant either to professional dietetic aims or to patient care, about the obligatory use of hospitalized patients for productive ends, about the uniformity of the product, about adequate checks on its quality, and about consumer acceptance. I would have many of the same questions, much the same equivocal attitude, if I found vast areas of the food warehouse filled with sacks of flour, a harried storekeeper worrying about his floor boards and adjusting his huge ventilating fans to blow away the dampness. Uncertainties would plague me if I found a whole section of the none-too-large kitchen filled with rotating ovens and a sizeable number of skilled employees monotonously turning out day after day, month after month, interminable loaves of bread. I would wonder if all this equipment, all this time, all this effort wasn't almost as anachronistic as home carding, home spinning, and home weaving, and whether I wouldn't be able to count on a better dinner if the same capital investment, the same time, and the same skilled effort were devoted to a succession of taste-tempting cakes and pies, cookies and tarts.

I would expect that my dietitian-hostess would know her physical domain as a musician knows his instrument; that her equipment inventory would be accurate and up to date, with the useful life expectancy of every griddle, every slicer, every oven "amortized" and reflected in her budget. I would fancy she would allot a portion of her busy days to applied meditation on layouts, flow charts, rearrangements of equipment, and structural expansions in the interest of greater efficiency, expanded service, or economy of operation. Her suggestions for change, for replacement, or for improvement in these physical areas would always be ready in advance and would be documented wherever possible with careful time studies, equipment specifications, data as to sources of supply and approximate costs. Study of the literature of her profession, the sharing of these interests with her associates and, perhaps most importantly of all, periodic trips to other hospitals in a search for better ways of doing old jobs would mean that she was always ready to take full advantage of opportunity when it knocked at her own door.

PATIENT HELP

I would be pleased to find patients engaged in selected activities in her department, but I would be depressed to learn that their presence was reflected in the staffing pattern for paid employees and that the completion of any dietetic task depended on the efficiency of their efforts. In this connection, I would like to quote from a statement of policy distributed by one of the federal hospital systems:

> It should be emphasized that farming *and allied activities* in which patients are engaged at NP hospitals are exclusively therapeutic implements and will not be operated by patient labour for the purposes of production, financial profit or institutional economy. If there is justification for the operation of such activities, in whole or in part, for other than therapeutic reasons, sufficient paid personnel will be required to preclude the obligatory assignment of patients.

Application of this philosophy to the dietetic service would mean reintegrative activity for patients who could derive personal benefit from it and would imply clearly defined, although carefully limited, therapeutic responsibilities for each dietetic staff member who had contact with patients in the departmental setting. It would not mean that the absence of a patient cadre for a day or for a month would precipitate a crisis in the smooth running of the service.

I would expect that the administrator of the hospital would have enough respect for the dietitian and would be sufficiently interested in good food service to see that she was provided with adequate tools. I would *not* feel that among her many skills witchcraft must be included, and nothing short of witchcraft is necessary when it comes to effective use of some of the creaking equipment held together with thumb tacks and bailing wire in many hospital kitchens.

So in these and in many similar ways, I would want to feel that my hostess was *able* to serve me a good dinner. Since this is an imperfect world, I would not expect her to plead immunity from my grumblings because all was not stainless steel and porcelain enamel in her domain, because her cooks were not all great chefs or her budget unlimited. I would, nevertheless, unhesitatingly accept the realistic limitations of her capacity for adaptation and extemporization and when she had done what was humanly possible with what she had, ask elsewhere for explanations of my poor dinner. If an indifferent superintendent could not tell me, perhaps an unaroused legislature or a preoccupied Board of Trustees could. If not from them, perhaps my answers would have to be sought from an unconcerned and apathetic society.

BRINGING ENJOYMENT TO MEALS

Now for my second anticipatory thought. Will I like my dinner? There are several reasons why I might not. If I am a meat, potato, and pie man, I am going to be most unhappy with efforts to educate me all at once to cottage cheese, stuffed tomatoes, and carrot sticks, even when I know such foods are just bursting open with big, rich, sun-ripened vitamins and minerals. I don't really care much what is good for me, but I certainly have distinct ideas as to what I do and do not like. Unless or until I come down with diabetes, pellagra, cirrhosis, or some kindred physical ailment, when any dietitian will have my heartfelt approval in bringing out her dietetic scales, her salt-free foods, and her 10 per cent vegetables, my own appetite *will* do a surprisingly good job so long as I am provided with a reasonable choice of alternatives. I will love it if I have a chance to do a little choosing on my own, and I will even hazard the guess that most of the other amateurs eating in hospital dining rooms will share my feelings. Let me select from a number of foods affording several possibilities of combination into adequately balanced meals, and I will promise to get into no nutritional difficulties. Even though I hate salads with all my being, there is a better chance of winning me to other views if they are made as pretty as a picture and put where I have to see them, with only the ecstatic smiles of my dinner companions drooling over their crisp goodness to move me toward experiment.

Then, too, I dislike to see a dining room pretending to be a calendar. What a dismal way of knowing it's Thursday again because there's pot roast and corn pudding for dinner! Even if I don't like my meal too well, I'll like it better for not always knowing in advance what it is going to be.

PERSONAL CONSIDERATIONS APPRECIATED

Remember that I have been conditioned in a special way about food. You see, I was one of only twelve children, not of twenty-three hundred; and it's only lately I've had to learn that when 80 sacks of potatoes, 1000 lb. of beets, and 120 gal. of soup are cooked at one time, they somehow begin to all taste the same—a sort of damp, wilted, tepid flavor which discourages rather than stimulates my appetite. I hardly have the gall to mention this, because I know I am not the only guest who has been invited, yet it does make a difference to me whether my food was cooked 2 hr. or 20 min. before I sit down to eat it, whether hot dishes are hot and cold ones cold, and whether my potato is one of 10,000 or one of 20. If there are ways of shortening the time between cooking and serving, if reheating techniques can be minimized, if, by certain maneuvers, the amount of food prepared for any one dining room can be kept in human perspective, I commend them to you. From my standpoint as the man who comes to dinner, they are worth much effort.

Another foible which I want to call to your attention is my preference for a reasonable time interval between meals and my hope that breakfast, lunch, and dinner can be eaten at hours which have some relation to my established habits. This matter, too, I recognize is troublesome and I can see how many considerations must have influenced the invitation that I partake of supper at 4:00 p.m. I can only remind you that I did not finish lunch until 12:30 and that from 4:30 p.m. to bedtime and from bedtime to breakfast is a long, empty, and often a hungry period. I don't know what can be done about it, but I hope you will think of something.

Now, we amateurs, we dinner guests, are greatly flattered when someone caters to our individual preferences in food. It's a wonderful experience to talk it over with you, to tell you what we liked last time and what would taste just right, say, about next Tuesday. We are very democratic about it and perfectly willing to await our turn and to go along with the preferences of the fellow guests. We don't ever expect to write all your menus for you, or even very many of them, but once in a while, if you could drop by where we live and ask for our ideas about what's good to eat, perhaps take a vote now and then, possibly have a sort of popularity poll in the newspaper, maybe celebrate an occasional birthday with a token cake, we would think that was all pretty grand.

I might just remind you, too, that I am no nineteenth century French aristocrat who feels comfortable eating his cake in the knowledge that those at the foot of the table have none. The philosophy of steak for the staff and gristle for the patients, I am sure never originated in the dietetic department, nor do I know that it operates in any hospital today. It is a regressive manifestation with which you may never have to deal. I suspect it is enough to remember that here is a potential lapse against which any responsible hostess will set her face. A reasonable viewpoint would be that if the table you set is enthusiastically patronized by the staff, it will probably be good enough for your other guests, the patients.

PLEASING APPEARANCE OF FOOD

As to my third anticipatory thought—will the meal be a memorable occasion—I want to scotch a hoary misconception that the way to a man's heart is through his stomach. The way is rather through his eyes to his stomach and thence to his heart. I remember with great clarity the old days of military uniforms, close order drill, and reveille. I remember how in time I became used to mud and mosquitoes and to shaving in cold water; but even today the spots come back before my eyes and once more I have that awful feeling of vertigo when I think of ice cream melting into congealed pan gravy and chocolate cake buried in stewed tomato sauce. Nor was this communism of the compartmentalized tray made any more pleasant by the rich patina of grease which

so exciting you just
can't believe it...
but it's true!

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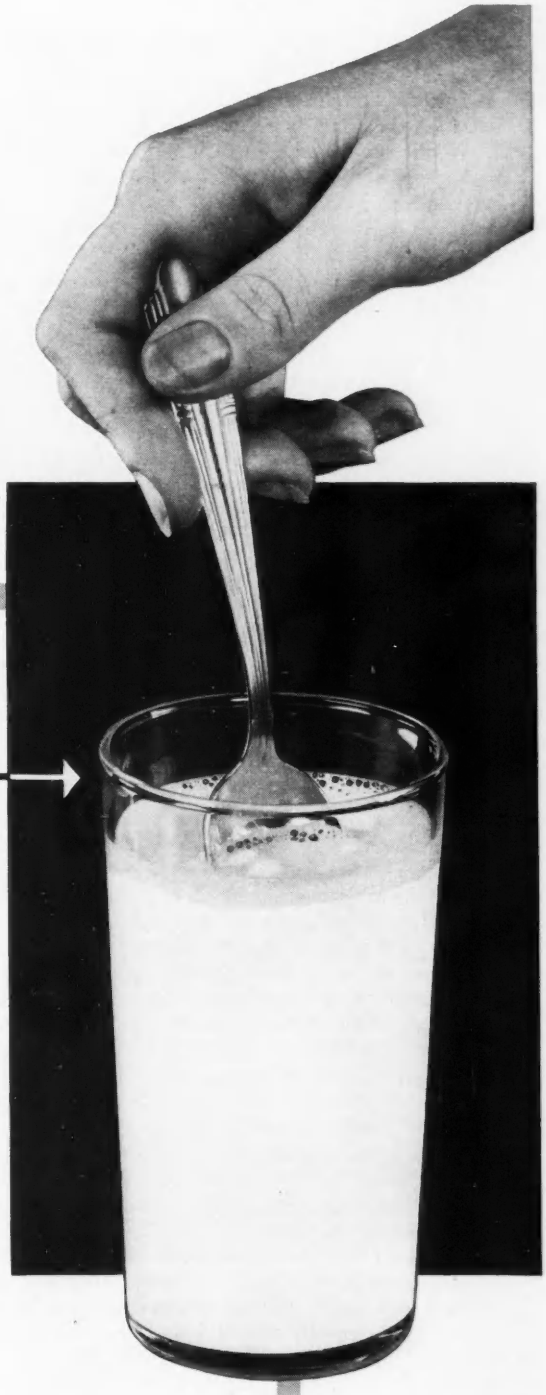

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Packed in airtight glass jars, to protect the fresh flavor, *Instant* Pet Nonfat Dry Milk offers all the advantages of nonfat dry milk *plus* instant mixing at surprisingly low cost—less than half the cost of bottle milk.

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never could be quite scrubbed off the metal. Certain words in the English language are wonderfully apt. I have often wondered what honest old dinner guest first christened military food service "The Mess." We agree to this food fraternization only when it occurs in our stomachs and revolt when it takes place a minute earlier. We delight in pretty dishes and snowy linen and scarcely restrain our hurt sobs when we find a fleck of completely sterile egg yolk between the tines of our fork or wipe away some entirely germ-free grease from the handle of our knife.

It is important to remember that these sensitivities are not lost when we become ill physically, emotionally, or mentally. It is also important to avoid the easy self-deception that psychiatric patients are totally insane. As a dinner guest, therefore, who is convinced that the F.B.I. is my private police force and who tells you how I bought out the Morgan bankers before breakfast, do not assume that I am any the less sensitive to the subtleties of my entertainment at your table.

I have never been able to get used to the long, and from my standpoint pointless, wait before the dining room door is suddenly thrown open. Could this perhaps be organized in a somewhat less dehumanizing fashion, particularly since there is no place for me to sit meanwhile? Of late I have taken to squatting on my haunches, propped against a corridor wall with nothing to look at but my fingernails. Then, when the door finally is opened, must there be all that shouting, all that show of impatience? At the zoo, also, I remember there is much opening and closing of gates at feeding time, much chivying of the animals, and a great deal of snarling. I have been your guest for several months now and I have long since learned the names of those who serve my meals, yet I might as well be a pair of hooks on an assembly line as far as they are concerned. This seems inhospitable to me since I am reasonably certain someone in the hospital has a record of my name. I admit that I might not always want to reply if one of your people should smile and ask me if I'd like to have some of the roast since it is particularly good today, but I think if would be pleasant just the same if they did.

Then, there's the coffee. I haven't room on my tray for it when I first go through the line, so I take a stoneware cup in one hand (you'll recall they have no handles) and my tray in the other. Once in a while, if I'm not accidentally jostled, I get to my table without spilling either the coffee or some of the food on the floor. I want to apologize for being so untidy, and I hope you'll understand my problem. I prefer black coffee, and I like it hot. Then, too, it always tastes best after I've finished eating. I understand, however, that I'm not allowed to leave my seat until we've all finished eating, and although my cup is usually cold by the time I'm ready for it, I find I'm gradually getting used to the cream being added while it is still in the urn.

You might wonder about the tables. As you know, we sit eight to a side and if I'm lucky, I get an end seat and have an elbow in my ribs on one side only rather than on both during the meal. You'll be amused at this. Last month, Mike put pepper on his ice cream, and since then there have been no shakers on any of the tables. Is pepper with ice cream bad for you? I hope no one notices how he likes to sprinkle salt in his milk, because I am partial to a little extra salt myself and I'd hate to see those shakers put away, too. I've learned to manage with the spoon pretty well, although it isn't the best for cutting a piece of meat or for eating pie. Would you think me silly if I asked you to set me straight about forks? Do they have three for four tines? It's foolish, I know, but I can't seem to remember.

Ventilation isn't the best in here, but I may be noticing it more because of the hot weather. Do we have bath days once a week in the winters too? The lights are high and dim and make your dining room look a little the way I remember the Post Office at home after dark. Maybe it's just the dilute brown paint that makes me think of it. It doesn't show coffee stains much, does it? Someone was telling me they have tablecloths on South 8. I hear you *really* start noticing them just before the Thursday laundry change. We're certainly better off without them, aren't we, although our table top does stay pretty slick with grease. I noticed the flies this evening are still working on the breakfast sirup.

Scraping our dishes on the tray passed up from the foot of the table, putting our spoons on another tray for the silver count, and getting the dishes stacked on a third took me some time to learn, but I think I pretty well have the hang of it now. I know it's a pointless habit, but I still have a real craving for a cigarette after I have finished and while we're all waiting to file out the door. I can see there probably wouldn't be time for it, though, since we have to make bed check by 5 o'clock.

It was funny the other day when Jerry put that handful of wild flowers in his drinking glass and then set the glass in front of his plate. He'd pulled them up some place in the woods that morning and had been carrying them around in his pocket. I suppose they really were just weeds. Anyway, one of your assistants took them away in a hurry and threw them out. I expect he thought Jerry might decide to eat them and they'd make him sick. It seemed to me mostly as if he only wanted to look at them, though.

OPPORTUNITIES IN MENTAL HOSPITALS

There are close to half a million patients in our 215 state-supported hospitals alone. Each should have at least one qualified dietitian on the staff and most would require a score for an adequate dietetic program. I am supposed to discuss opportunities in mental hospitals. Let me say I am not a recruiting agent. I have no printed applications for employ-

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ment. I can tell you nothing about salary scales, living conditions, and retirement benefits. The opportunities I do ask you to think about concern the things each of us feels but rarely puts into words—the realities behind the starched white uniform, the pay check, and the duty hours.

After all, what is opportunity? Not a promise, not an assurance—*never* a guarantee. It is, instead, a hope, a purpose, a chance. Opportunity says, in effect: "Here are the facts. What do you make of them? How will you think about them? What do you propose to do with them?"

The mental hospital offers you a chance for satisfaction in a complex job, the opportunity to add a little comfort to sadly barren lives, a little sparkle to the monotony of days for hundreds—perhaps for thousands—of human beings, condemned through no fault of their own to social exile.

The mental hospital offers you a chance to be respected as a real person, not as an apple polisher, not as a figurehead, but as a solid citizen who doesn't buckle under responsibility, who knows her job and who likes doing it.

The mental hospital offers you a chance to advance professionally in the tough school of experience. It takes a grown woman to stay on top of the job we are talking about here.

The mental hospital offers you a chance to learn and to teach in an area of skill which never has and never can be captured in a textbook, which no school room will ever succeed in making explicit.

More than all the rest, the mental hospital offers you the opportunity of seeing and sharing in the naked realities of human experience. Here, in sharp and poignant focus, are the dramas of sacrifice and exploitation, of generosity and malice, of compassion and neglect, of laughter, tears, hate, and love. Don't be deceived because the stage is small. Within this microcosm is all that is most noble, all that is most craven, stripped of veneer, undiluted by pettifogging circumstance.

To the person who is undismayed by reality, the mental hospital offers an opportunity for happiness. To the person who isn't frightened by life, the mental hospital offers the chance to live.

vvvvvvvvvvv

Adding Flavor to Sodium-Restricted Meals in the Hospital

MARJORIE CANTONI

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Since many patients must restrict sodium in their food for a long time, the ideal method of teaching is to begin by serving well prepared meals in the hospital. It is surprising how often a patient will pattern his home meals after those he has received at the hospital. For example, if pork is not served, patients may have the idea they should not eat it.

Among the problems of the dietary department is the fact that too many different kinds of low-sodium diets must be prepared. I know of no better way of simplifying matters than to discuss this with the chiefs of the medical and nursing services and to establish a minimum number of different diet orders. This may even be the first step toward a diet manual for your hospital.

If the dietary department does not need to spend most of its time preparing diets containing innumerable levels of sodium or "no-salt-shaker" diets, more time and ingenuity can be devoted to making palatable and attractive meals.

If a good tasting, low-sodium bread can be made in the hospital bakery, it fulfills the triple function of being acceptable to the patient, contributing to his education, and promoting the idea that life doesn't stop when he is placed on low-sodium meals. (One hospital ran into an unexpected situation when it found all of its patients wanting the salt-free bread because it was a delicious, home-made variety.)

"Salt-free" or sweet butter may be too costly for regular hospital use, but there are other acceptable spreads such as the marmalades, low-sodium peanut butter, jellies, and jams. The patient at home can usually keep a small quantity of salt-free butter on hand for his exclusive use without increasing the family food budget too much.

Practically all the meats used on the regular house diet may be used for the low-sodium diet, but instead of cooking the meat plain, couldn't we rub a little chopped garlic on pork, or black pepper on beef, or rosemary on veal, or dry mint on lamb? Roast or baked chicken or turkey can be served with sage-flavored stuffing. Dry mustard or herbs help make a meat loaf or hamburger delicious. Many ideas to make food more tasty and attractive can also be found by turning to European or Eastern recipes. French and Italian wine and herb cookery can stimulate any patient's flagging appetite, and curried lamb, or beef served with curried rice, is a delicious Indian contribution to the art of cookery.

Most people, including dietitians, have several favorite cook books and recipes which they turn to—especially when entertaining friends. These are the recipes that feature flavorful seasonings, interesting food combinations, and herb secrets which have proved to be most acceptable. These provide another source for adding that extra zest to sodium-restricted diets. For example, peppers stuffed with meat loaf mixture and baked with tomato sauce are tempting enough for family or company. A clove of garlic and a bay leaf will do wonders for the sauce. Serve the

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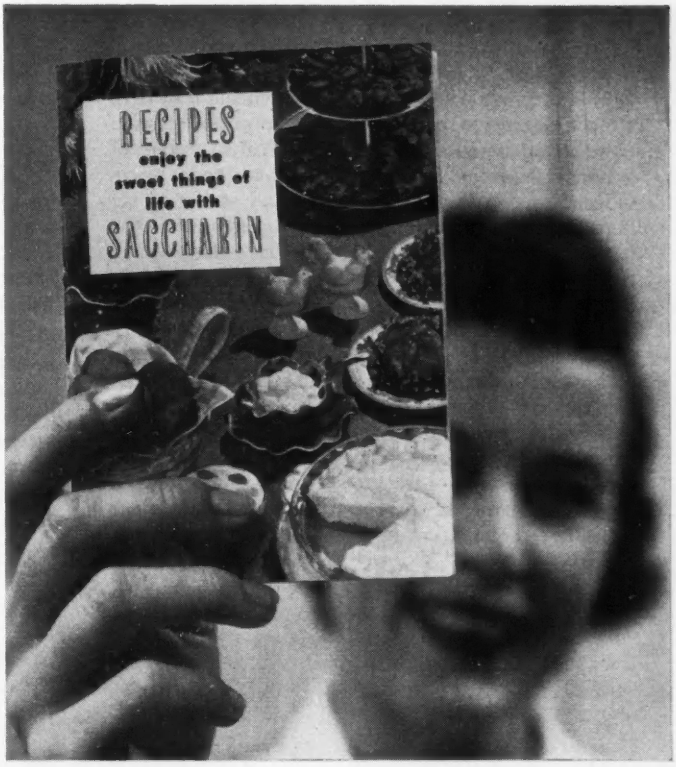

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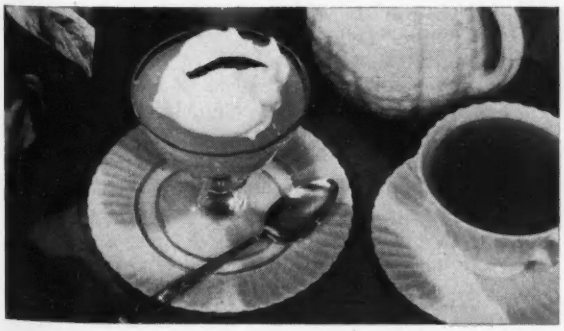

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peppers with whole kernel corn and tossed salad. Beef stew made with red wine for flavoring results in a most delectable main dish that combines well with fresh string beans and sliced tomatoes. A wedge of lemon with broiled liver or with liver and onions provides a tang. Add a baked potato and scalloped tomatoes with herb flavoring, and you have made the patient's meals more interesting. Even a shish kabab recipe can be adapted to the sodium-restricted diet, if the meat is marinated with a French dressing of oil, vinegar, dry mustard, garlic, and paprika.

If vegetables are steamed, those for the low-sodium diet can be removed before salt is added for the general diets. Sometimes, it is a nice change for these patients if vegetables are garnished with chopped chives, buttered salt-free crumbs, mixed herbs, shredded toasted almonds, tomato slices, green peppers, or paprika. Or, you might try a little sugar to bring out the flavor in fresh peas, winter squash, or corn.

As for salads, there are any number of vegetables or fruit combinations. Oil and vinegar can be mixed with herbs and seasonings (except, of course, salt). I very often add dry mustard, paprika, and a clove of garlic.

Serving hot spiced fruits, such as spiced peaches, applesauce, or fruit compote flavored with lemon and cinnamon, will add extra appeal to the meat course.

Fruit for dessert is usually available from the house menu. If you have the personnel to vary dessert, you may want to try cookies made with a vegetable fat and low-sodium baking powder. Taking your standardized recipes and making these few changes will help add variety and taste appeal. One hospital used to make "thumb-print" cookies with a little jelly on top. They also found a coffee cake topped with cinnamon and sugar most acceptable.

Dietitians have a big job if they want to apply sound, scientific data about low-sodium diets in the treatment of hypertension, congestive heart failure, or other conditions with edema, such as the nephrotic syndrome, cirrhosis of the liver, and edema resulting from the use of some of the newer hormonal agents. These practical aspects of low-sodium diets which we have discussed may be helpful and can be applied in your own hospital, out-patient clinic, or health department in promoting better care of the patient and in providing greater comfort for him.

vvvvvvvvvv

Improving the Dietetic Service

RUTH PONTIUS

Chief, Detetic Service,
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Dietetics is now defined as the "science and art of feeding individuals or groups under different economic and health conditions according to the principles of nutrition and management." We might say, a good meal is good medicine for both the healthy and the ill. But, in order that food may become an integral part of medical treatment, much more is involved than the preparation and service of inviting meals. The dietitians must work closely with the professional staffs, particularly doctors, nurses, and social workers, for greater assurance that the required nutrients and nutrition education provided will dovetail with the over-all medical care. Dietitians are specialists, and among their many required qualifications, tact, sympathy, understanding, and sincerity are extremely important in carrying out responsibilities to the patient.

In a successful hospital dietary service, food must be served regularly, it must be of uniform quality and standard quantity, and it must be prepared at a controlled cost. To attain these goals, there must be a close working relationship with other functional units or departments of the hospital. High quality food production; budgetary control; proper handling of personnel matters; procurement of food, supplies, and equipment; and maintenance of the dietary department all depend on this liaison. Desirable practice in hospital dietetics includes not only the art of applied nutrition, but equally important, the art of dealing with people.

The successful operation of the dietary service depends not only on all the various other services or departments, but also on well trained and happy employees and supervisors. Careful orientation of new employees and refresher training for all dietary personnel are essential. In addition to developing manual skills of the employees, the teaching of the application of diet therapy to ward food service workers results in their exercising greater care in setting up patients' trays. The foods included on various dietary regimens can be presented in such a way as to promote better understanding and appreciation of the role that diet plays in the care of the patient. In addition, a "handbook for dietary personnel" is invaluable for all employees. It should contain basic information and should preferably be of such size that the employee can have it readily available for reference. In carrying out training programs, the cooperation of other services can be most helpful. The personnel service can offer much in developing a fine and loyal group of employees. This assistance is unfailing in bringing about job satisfaction.

Another point deserving attention is that of relieving dietitians of the time-consuming "chore" of charting the food distribution three times a day for ward serving units. This is necessary so that each cook knows quantities of each item to prepare for

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each ward, but by training a selected number of nonprofessional persons to do this clerical work, dietitians can have more time to perform professional duties and act in an executive capacity.

Planning weekly basic menus in advance is a challenge to every dietitian. In developing the menus for modified diets, every effort should be made to limit variations from the basic diet by using as many of the regular food items as possible. This is necessary for reasons of economy, work load, facilities for food production, and available personnel. The use of tested recipes is one way to insure service of high quality food. Food acceptance studies alert dietitians to patient preferences for various menu items. Developing tested recipes and conducting food acceptance studies on a continuing basis are "musts" for keeping menus interesting and free from monotony.

NUTRITION EDUCATION

Many patients may be required to remain on a modified diet for a long time and some, for the remainder of their lives. Treating them during hospitalization and then sending them home with little or no dietary instruction are not enough. They wish to understand and should be taught how to live with dietary restrictions just as much as an amputee needs to learn how to walk with prosthetic devices. Then, too, instruction in normal nutrition is beneficial for all patients.

Operating a nutrition clinic as part of the dietetic service will help to insure organized nutrition education for all patients. In our hospital nutrition clinic we have numerous visual aids including food models. We are fortunate in having facilities for showing films and slides. We have the film kit for group instruction of diabetic patients. For instructing patients with peptic ulcers, a set of slides with recording, which covers personal care and importance of the diet, has been developed by one of the staff doctors.

Classes, planned for groups of patients and including members of the patient's family, permit an exchange of ideas. Many times one patient will benefit from experiences of another who is on the same diet.

With a regular schedule of bedside visiting and group instruction, the patient will learn early during his hospitalization the purpose of his diet and procedure to follow in modifying the regular diet to meet his specific needs.

There are facets to the operation of the dietetic service involving every other service and division of the hospital organization. The tray of nutritious, attractive food represents the work of many people outside the dietetic service. It is the people behind those who actually prepare the food for the patient to whom tribute should be paid—those who seldom see or come in contact with the patients, but whose work is so vital to their good care, such as personnel, supply, and engineering services.

Dietary Fat and Heart Disease

Large amounts of dietary fat, not of cholesterol *per se*, increase the cholesterol in the blood, according to Dr. Ancel Keys, University of Minnesota. He pointed out, while speaking before the recent meeting of the American Chemical Society in New York, that the total calories eaten, and the resulting tendency towards obesity, also have some influence on the blood cholesterol, but these seem to be less important than the fats in the diet. "Possibly obesity exerts its bad effect in part because fat people may tend to eat more fats than the average."

If we are to find some way to prevent or reduce the outstanding single cause of death among Americans today, Dr. Keys feels that we must find ways to control the blood fractions containing cholesterol.

He reported a four-year controlled dietary experiment on men in a mental hospital which showed that the amount of dietary cholesterol has little or no effect in man, unlike the rabbit and a few other animals. However, the total intake of all fats was important. High-fat diets tended to increase the blood cholesterol while a low-fat diet did the opposite.

"Comparisons of populations habitually eating different proportions of fats in the diet have now given striking confirmation of these experiments and have shown that the incidence of coronary heart disease tends to run parallel to the average fat content of the diet and to the average concentration of total cholesterol in the blood. Field studies have been made in the U. S., England, Spain, Italy, Sweden, and South Africa. Blood cholesterol and coronary disease are highest in the countries like the U. S. and Sweden, where diets are high in fats, and they are lowest when the diet is very low in fats, such as among the South African Bantu.

"In the U. S., the average diet now provides 40 to 43 per cent of the calories in the form of fats. In Italy, the figure is around 20 per cent, and studies just completed have shown that the average amount of cholesterol and beta lipoproteins (which contain cholesterol) in the blood is much lower than in the U. S. or Sweden.

"Further, it is found that coronary heart disease is relatively rare in Italy, except among some rich people who eat luxurious diets and among the people of Bologna and the Po Valley where the average diet provides close to 30 per cent of the calories from fats."

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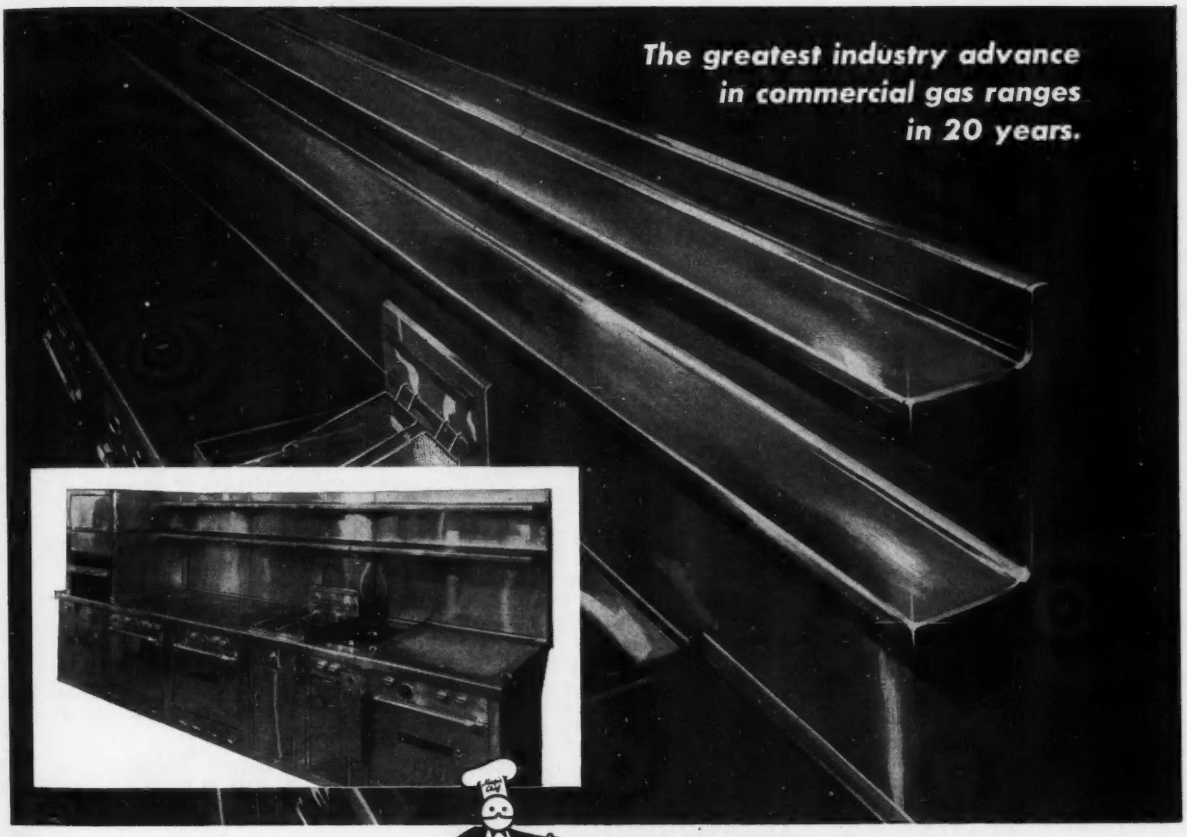

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Current Literature

Contributed by Mildred Bonnell and administrative dietetic interns, University of Washington, Seattle; Jeanette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Elizabeth H. Tuft, Wesley Memorial Hospital, Chicago; and the Journal staff

THE AMERICAN JOURNAL OF CLINICAL NUTRITION

Vol. 2, July–August, 1954

* On some aspects of protein nutrition. P. Gyorgy. —p. 231.

The cystine and methionine content of the hair of malnourished children. A. P. Wysocki, G. V Mann, and F. J. Stare.—p. 243.

* Nutrient intake and blood findings of men on a diet devoid of meat. L. Mirone.—p. 246.

* The protein status in pulmonary tuberculosis. Co Tui, N. H. Kuo, and L. Schmidt.—p. 252.

* Does a low intake of calcium retard growth or conduce to stuntedness? A. R. P. Walker.—p. 265.

* The low purine diet. Dietotherapy. C. H. Robinson.—p. 276.

Protein Nutrition. Protein malnutrition is a world-wide problem involving the large tropical belt of Asia, Africa, and Central and South America. It is predominantly seen in infants in the post-weaning period up to six or seven years. Recently termed "kwashiorkor," it is apparently the same as or similar to the condition known as "Mehlnahrschaden" or "starchy food dystrophy," and is characterized by a lowered ratio of protein to total calories rather than by low caloric intake. When the percentage of calories supplied by protein is below 15 per cent, clinical manifestations appear. The exception to this rule appears to be human milk, in which the ratio is only 6 to 7 per cent protein to total calories. However, human milk contains the "Bifudus factor" (an as-yet-unidentified growth factor), which may be the reason for better utilization of its protein. The liver is the central organ of protein metabolism, and hepatic damage is found when protein consumption, especially of animal origin, is low. The presence of sufficient lipotrophic factors, especially choline and its precursors, protects against chronic cirrhosis, whereas acute necrosis can be prevented by the sulphur amino acids, vitamin E, or the so-called "third factor" of K. Schwarz. The role of intestinal flora in choline utilization is discussed, and the author concludes by emphasizing that improvement in tropical health depends on the solution to the nutritional problem and prophylactic measures against hepatic conditions.

Nutrient Intake and Blood Findings on Vegetarian Diets. Prolonged consumption of a diet low in animal protein has had no apparent deleterious effect on the health of members of a community which does not eat meat. Mainstays of the diet are whole wheat bread containing 2.17 per cent dried skim milk, barley coffee containing 9.26 per cent fresh skim milk, vegetables, and fruit. Average total protein intake is 58 gm., with an average of 17.2 per cent from animal origin. Fat intake is only 8.5 per cent of the total caloric intake. Thus both protein and fat intakes are below the recommendations of the National Research Council. The addition of skim milk to the vegetable diet would bring its nutritive value to within accepted standards for total protein, calcium, and riboflavin, although total calories and protein would remain low. The serum cholesterol and cholesterol ester levels are maintained at normal levels despite prolonged low-fat, low-cholesterol consumption. Non-protein nitrogenous fractions of the blood have not been affected.

Protein Status in Pulmonary Tuberculosis. Nitrogen equilibrium studies in a limited number of patients suffering from advanced chronic pulmonary tuberculosis with weight loss and a poor prognosis showed that there is, as a rule, no increased azoturia. Thus the weight loss is not due to a "catabolic response" or "toxic" destruction of proteins, but is probably caused by disturbance of the appetite and is reflected by the presence of one or more changes in the body fluid compartments associated with hypoproteinemia. High-protein therapy resulted in a highly positive nitrogen balance and rapid weight gains. The effect of rapid protein replacement on increased respiratory activity associated with specific dynamic action of high protein ingestion is discussed. Investigation is needed to learn whether hypoproteinia which jeopardizes healing because of shortage of healing material is more harmful than rapid protein replacement which favors healing but stimulates respiratory activity.

Does Low-Calcium Intake Stunt Growth? This is a review article of studies in various parts of the world, in which height and calcium intake may be generally correlated. The authors reach the conclusion that calcium intake per se has not been established as of importance in regulating height. It is suggested that apart from gross undernutrition, the critical intake of calcium, below which retardation of growth occurs, lies below the wide range of calcium intake in different parts of the world.

Low-Purine Diet. If dietary regulation, through a low-purine diet, is to be of benefit in gout, it must be observed over a long period of time. The author lists some regulations which may be of benefit in the treatment of gout, including caloric, protein, and purine restriction. Suggested basic foods are listed, along with sample menus.

THE AMERICAN JOURNAL OF MEDICINE

Vol. 17, August, 1954

* Dehydration with hypernatremia, hyperchloremia and azotemia complicating nasogastric tube feeding. F. L. Engel and C. Jaeger.—p. 196.

Treatment of hypertension. S. W. Hoobler.—p. 259.

Dehydration Complicating Tube-Feeding. Five cases of dehydration with hypernatremia, hyperchloremia, and azotemia are described in patients receiving nasogastric tube feedings. In all instances, the protein intake was excessive, ranging between 125 and 200 gm. daily, and the fluid intake was inadequate to allow for excretion of all the nitrogen and other solute from the diet and from tissue catabolism. The development of the chemical abnormality was generally associated with deterioration in the clinical state of the patients. One patient died before the electrolyte disturbance was corrected. In the others, electrolyte balance was restored by either increasing the water intake or decreasing the protein intake, or both. The potential frequency and significance of this syndrome is discussed in the light of the widespread use of tube feeding diets containing moderate to high levels of protein. A prepared tube feeding has recently been put on the market, the directions for which call for making it up to contain 91 gm. protein per liter or 210 gm. protein in 2300 ml. of diet. No specific recommendations for additional fluid are made. One patient developed the syndrome of dehydration while receiving the above diet as recommended plus 1000 ml. extra water. Twenty-four hr. after increasing the fluid intake to 8000 ml., serum electrolytes and NPN were normal and there was a significant improvement in the patient's general clinical condition.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 44, September, 1954

* Effect of milk and other dairy products on the thermal inactivation of coxsackie viruses. A. S. Kaplan and J. L. Melnick.—p. 1174.

Survival of Viruses in Dairy Products. Perhaps the most widely occurring viruses in the human intestinal tract are those of the Coxsackie group. Because fecal contamination of food and drink can occur in nature, the thermal destruction of several strains (obtained from human and mouse sources) suspended in water, milk, cream, and ice cream was investigated. Substances like milk and its products were found to protect virus against destruction by heat, although when suspended in milk, the minimum conditions recommended for pasteurization (61.7°C. for 30 min. or 71.1°C. for 15 seconds) proved adequate for inactivation of human fecal strains. The holding method provided sufficient heat to destroy two mouse-passaged

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strains suspended in milk, but the high-temperature, short-time method used did not. Both methods were capable of inactivating human strains suspended in cream, although complete destruction of the mouse-passaged viruses was not attained by either method. A higher temperature was required to inactivate human strains with the holding method.

AMERICAN PRACTITIONER AND DIGEST OF TREATMENT

Vol. 5, August, 1954

* Avitaminosis C in 1953: a clinical study. G. E. Morris.—p. 658.

Scurvy in One out of Twenty Patients. Scurvy is more prevalent in the general population than is commonly realized. The author observed that fifteen of his new patients, or 5.45 per cent of the total seen, had frank or latent scurvy. These patients from all walks of life believed that they were following a balanced diet. The prescorbutic state was discovered through laboratory tests since there are no clinical diagnostic criteria. Eight patients showed frank clinical scurvy, and all fifteen showed suboptimal ascorbic acid blood levels. All responded with post-therapeutic high levels of blood ascorbic acid after receiving large doses of ascorbic acid in the form of citrus juices and tablets. Those in charge of institutional feeding are warned to maintain adequate vitamin content in diet, as scurvy was found in four men studying in a theological seminary.

ANNALS OF INTERNAL MEDICINE

Vol. 41, July, 1954

* Diabetes and panhypopituitarism. B. Rothfeld and J. M. Rodas.—p. 140.

Vol. 41, August, 1954

* Ulcerative colitis: therapeutic effects of corticotropin (ACTH) and cortisone in 120 patients. J. B. Kirsner and W. L. Palmer.—p. 232.

Serum concentrations of vitamin B_{12} in acute leukemia. M. F. Beard, W. R. Pitney, E. H. Sanneman, M. J. Sakol, and H. H. Moorhead.—p. 323.

Some observations on the pathogenesis of cardiac edema. Editorial.—p. 377.

Diabetes and Panhypopituitarism. The syndrome of panhypopituitarism was first reported in 1914. Since then the number of reported cases has increased rapidly. However, only seven cases associated with diabetes can be found in the literature before the present study of one patient. The outstanding finding is a severe hypoglycemia requiring rapid reduction or discontinuance of insulin. In diabetic patients who, for no apparent reason, develop a severe insulin reaction which responds slowly to intravenous glucose, the possibility of panhypopituitarism should be considered.

ACTH and Cortisone for Ulcerative Colitis. Corticotropin (ACTH) or cortisone was administered to 120 patients with moderately severe or severe ulcerative colitis. The immediate clinical response was good or favorable in 94 of the 108 patients who received ACTH, and in 9 of the 12 patients treated with cortisone. These steroids do not specifically cure ulcerative colitis, prevent recurrences, or replace established methods of treatment. Nevertheless, they are useful therapeutic adjuncts when administered in sufficient quantities and with due regard for possible complications.

ARCHIVES OF INTERNAL MEDICINE

Vol. 93, June, 1954

* Metastatic calcification and nephrocalcinosis from medical treatment of peptic ulcer. I. Snapper, W. G. Bradley, and V. E. Wilson.—p. 807.
* Survey of clinical significance of serum mucoprotein level. E. Z. Greenspan.—p. 863.
* Coexisting diabetes mellitus and Addison's disease. E. R. Stanton, H. W. Jones, Jr., and A. Marble.—p. 911.
* Obesity—its complications and sequelae. H. C. Walker, Jr.—p. 951.

Vol. 94, July, 1954

Contributions of Richard Bright and his associates to renal disease. N. M. Keith and T. E. Keyes.—p. 5.

* Behavior of serum iron in various diseases of the liver. E. R. Christian.—p. 22.
* Prevalence of manifest atherosclerosis in a working population. E. P. Boas and F. H. Epstein.—p. 94.

Complications Resulting from Treatment of Peptic Ulcers. The authors present two cases of metastatic calcification in patients with peptic ulcer. Recently at least eight such cases have been reported. All took large amounts of milk, calcium, and alkali for their ulcers and ultimately developed several or all of the following symptoms: elevation of serum calcium and phosphorus, metastatic calcinosis, band-shaped keratinitis, hypocalcia, mild alkalosis, and anemia, with normal alkaline phosphatase levels. When the syndrome is discovered in an early stage, the ultimate uremia can be prevented and the serum calcium returned to normal by halting intake of milk and alkali. The calcium deposits were much more extensive in patients taking excess amounts of milk, calcium, and alkali than in those who suffered with hypercalcemia due to hyperparathyroidism.

Clinical Significance of Serum Mucoprotein Level. The serum concentration of mucoprotein (M), and alpha-1-globulin component, normally varies from 40 to 70 per 100 cc. in adult women and from 48 to 75 in adult men. Diseases characterized by inflammatory, neoplastic, degenerative, thrombotic, or traumatic tissue changes are associated with high serum M levels. Reduction in serum M levels is found in 70 to 90 per cent of patients with infectious hepatitis, homologous serum hepatitis, portal cirrhosis, panhypopituitarism, and Addison's disease. Low levels are also found in a significant percentage of patients with nephrosis, myeloma, thyroid disorders, and diabetes mellitus. The hypothesis is presented that the M level at any one time represents an equilibrium between two sets of factors: (a) tissue proliferation and degenerative processes, which, when accelerated, as in inflammatory, neoplastic, or traumatic disease, result in increased M levels and (b) hepatic and endocrine functions, which, when impaired, lower the M level.

Coexisting Diabetes and Addison's Disease. This report of coexisting diabetes mellitus and Addison's disease in a ten-year-old boy brings the total of published cases to 47, 27 males and 20 females. In only 11 cases was Addison's disease preceded by diabetes; in 3, onset of the two conditions seemed to occur simultaneously. When Addison's disease develops in a person with diabetes, there is a diminution in the insulin requirement with frequent hypoglycemic reactions. Weakness, fatigue, and Addisonian crises with characteristic electrolyte changes may supervene. In the differential diagnosis, hypopituitarism, hypothyroidism, and disorders of the liver must be considered. The therapeutic problem is met by treating each disease definitively. In combination with oral cortisone, long-acting desoxycorticosterone acetate (DOCA) preparations for intramuscular administration are especially useful.

Obesity—Complications and Sequelae. A review of the literature shows that correlation exists in some cases between obesity with various pathologic conditions and decreased longevity. However, in no case have the reasons for the associations been conclusively demonstrated. Clinical evidence is presented as to the advantage of weight reduction in arteriosclerotic heart disease, hypertension, diabetes, and other conditions.

Serum Iron in Liver Diseases. Viral hepatitis causes significant elevation in serum iron more consistently than any other disease except hemochromatosis. Values reach a peak during the third week, and return to normal after the eighth week. There is no constant correlation between serum iron and severity of the disease, nor is there a constant correlation between serum iron and hepatic function tests in viral hepatitis. Significant elevations of serum iron are not unusual in other diseases of the liver, particularly various hepatides and the necrotizing phase of portal cirrhosis. Determinations of serum iron are of value in differentiating between viral hepatitis and extra-hepatic biliary obstruction.

Prevalence of Manifest Atherosclerosis. Data are presented on the prevalence of manifest coronary, peripheral, cerebral, and aortic atherosclerosis; hypertension; diabetes; and overweight in a random sample of working men and women, age forty and over. The over-all prevalence of atherosclerosis was 33 per cent in men and 23 per cent in women. In contrast to coronary disease, manifest aortic atherosclerosis is as frequent in women as in men. The importance of aortic calcification as a recognizable stigma of atherosclerosis is discussed.

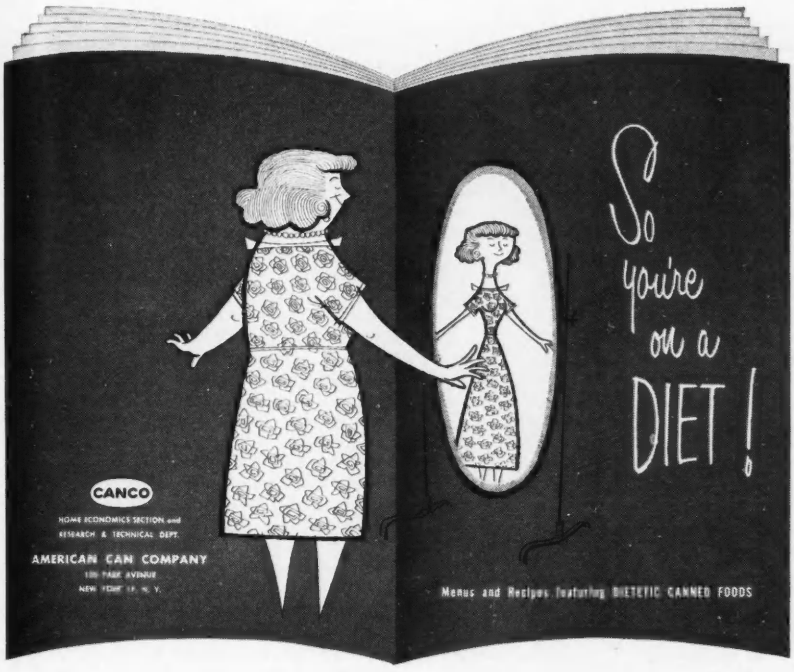
BRITISH MEDICAL JOURNAL

No. 4884, August 14, 1954

* Some observations on the treatment of ulcerative colitis with ACTH. A. P. Dick and A. G. Becket.—p. 378.
* Are diabetic degenerative complications preventable? D. M. Dunlop.—p. 383.

No. 4885, August 21, 1954

* Treatment with insulin zinc suspensions. G. Melton.—p. 448.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TOTAL COST:
COST PER SERVING:

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Bacon, diced	8 slices	Approx. 6 oz.	
Onions, chopped	1½ cups	12 oz.	
Green beans, drained	1 No. 10 can	6 lbs. 5 oz.	
Tomatoes	1 No. 10 can	6 lbs. 6 oz.	

METHOD
1. Fry bacon until crisp and brown.
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3. Fry onions in bacon fat until golden brown.
4. Add green beans, tomatoes and bacon.
5. Season with salt and pepper and heat thoroughly.

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Ulcerative Colitis. In this study, fourteen patients with ulcerative colitis were treated with ACTH. In severe cases, the start of a complete remission coincided with the administration of ACTH. In four patients, a varying degree of maintained improvement occurred. Transient improvement of slight degree was noted in three cases. It is felt that ACTH has a place in the management of certain cases of ulcerative colitis, particularly acute and severe cases of fairly recent onset.

Diabetic Degenerative Complications. In the last five years surveys have shown that there is a definite correlation between control of diabetes and the incidence of its complications. Evidence is submitted that good control of diabetic patients is attained by diet in which the carbohydrate is not more than 200 gm. Patients should be initially trained in the hard school of weighing food.

Insulin Zinc Suspensions. A series of 52 patients with diabetes mellitus were treated with insulin zinc suspension. All 16 new cases were satisfactorily stabilized on this preparation. Of 36 patients transferred from treatment with older insulins, 26 were satisfactorily controlled on IZS alone; 4 were reasonably well controlled, and 6 were returned to previous insulin treatment. The quantity of carbohydrate in the diets varied from 120 to 250 gm. a day, generally divided at four main meals with mid-morning and bedtime snacks. In some patients in which the noon blood sugar remained high as compared with those tests made in the day, the carbohydrate was reduced at breakfast and more was given later.

CANADIAN JOURNAL OF PUBLIC HEALTH

Vol. 45, July, 1954

* An outbreak of infectious hepatitis affecting a rural community in Ontario. R. M. King, A.-M. Quigley, J. C. Sinclair, and C. E. van Rooyen.—p. 279.

Infectious Hepatitis. In a review of the Richuale, Canada, epidemic of infectious hepatitis, it was found that the sanitary standards of the community were low and the high incidence of family cases was probably attributable to the lack of domestic hand wash basins, kitchen sinks, toilet facilities, and piped water supply. The persistence of cases throughout the winter suggests aggravation of sanitary problems during cold months, with correspondingly greater opportunities for household contact.

CEREAL CHEMISTRY

Vol. 31, May, 1954

* Staling studies of bread made with flour fractions. II. Selection of the sensory test panel. W. G. Bechtel and D. F. Meisner.—p. 171.

Vol. 31, July, 1954

* The albumin and globulin contents of wheat flour and their relationship to protein quality. J. W. Pence, N. E. Weinstein, and D. K. Mecham.—p. 303.

Selecting a Taste Panel. Statistical analysis of performance of two groups totalling sixty-three persons was used as the basis for selecting a taste panel. All candidates were given preliminary training in observing the changes in bread as it stales, after which their ability to judge the freshness of bread from one to six days old was tested. After several replications, the results of each trainee were analyzed statistically for F-value and by variance. Those whose performance gave F-values below the 5 per cent level of confidence were considered unqualified to serve as judges. Of those who qualified, 24 fell in the category with F-values above the 1 per cent level of confidence and 19 achieved a confidence level above 5 per cent.

Albumin and Globulin of Wheat Flour. The soluble-protein contents of thirty-two flours of widely varying type and baking quality were found to range from about 13 to 22 per cent of the total flour protein, with a slightly greater proportion of albumin than globulin, on the average. Both the albumin and globulin contents, as well as the ratio of albumins to globulins, varied significantly among the flours.

DIABETES

Vol. 3, May–June, 1954

* Effect of cortisone on carbohydrate metabolism, measured by the "glucose assimilation coefficient."—P. A. Bastenie, V. Conard, and J. R. M. Franckson.—p. 205.

Cortisone and Carbohydrate Metabolism. Except for changes in insulin activity, it is thought that the usual clinical doses of cortisone have but slight effect on the carbohydrate metabolism of normal subjects. By mathematical analysis of intravenous glucose tolerance tests, it is possible to calculate a "glucose assimilation coefficient" and to detect thereby changes in carbohydrate metabolism due to cortisone treatment. This method is described as well as results of tests on eighteen subjects. Definite changes were observed, showing reduction in tolerance in the initial stages of cortisone administration, but improvement under protected treatment. With smaller-than-usual doses, the inhibiting effect of the drug on glucose assimilation is of short duration.

FOOD RESEARCH

Vol 19, July–August, 1954

* Effect of sucrose and ascorbic acid on quality retention in fresh and frozen strawberry puree. D. G. Guadagni.—p. 396.
* Effect of aging and cooking on the distribution of certain amino acids and nitrogen in beef muscle. I. D. Ginger, J. P. Wachter, D. M. Doty, B. S. Schweigert, F. J. Beard, J. C. Pierce, and O. G. Hankins.—p. 410.
* Heat resistance of strains of *Salmonella* in liquid whole egg, egg yolk, and egg white. W. W. Osborne, R. P. Straka, and H. Lineweaver.—p. 451.

Sugar in Strawberry Purée. The effects of sugar, ascorbic acid, and delay between puréeing and freezing of strawberry purées was investigated. Although it is recognized that sugar is needed to obtain the best flavor in frozen strawberry products, it has not been clear whether it protects the natural color and flavor of the berries from deteriorative changes or whether it merely adds sweetness or accentuates the natural flavor or both. The study indicated that deteriorative changes in the quality of fresh purée occur within 2 to 3 hr. at room temperature. Sucrose, in a ratio of one part to four of purée neither prevented nor minimized these changes. In frozen purées, the addition of sucrose or ascorbic acid offered no advantage with respect to quality retention during freezing, storage, and defrosting.

Protein of Beef Muscle. Nitrogen, arginine, leucine, tyrosine, histidine, glutamic acid, lysine, and non-protein nitrogen fraction (NPN) in raw and cooked beef muscle and drippings from the cooked meat were determined before and after a two-week aging. The free amino acid nitrogen was increased by aging, and cooking caused a marked decrease in the soluble protein nitrogen, with liberation of some free amino nitrogen. Only a small proportion of the total nitrogen was found in the drippings after broiling, of which essentially all was nonprotein nitrogen. Aging of the samples had little effect on the arginine, leucine, and tyrosine content, although a greater percentage of each was found in the drippings and NPN fractions than in the unaged steaks. Up to 31 per cent of the total histidine was found in the NPN fractions. Bound forms of leucine, tyrosine, glutamic acid, and lysine were found in drippings and NPN fractions.

Pasteurizing Egg Products. Although Salmonella organisms are generally killed at temperatures above 135°F., studies indicated that 1 to 4 min. at 142°F. are needed to destroy Salmonella in liquid whole egg when large numbers are present initially. This presents a problem, since at this temperature, egg begins to thicken and egg white coagulates rapidly. This study was carried out to extend the knowledge of heat sensitivity of Salmonella and of the steps which might be required to provide a satisfactory margin of safety for egg products of various types. Heat resistance was found to vary with the strain of Salmonella rather than with species or group and was greater near *p*H 5.5 than above *p*H 7. If numbers of Salmonella can be kept low, heat treatment for 3 min. at 142°F. would reduce the count to less than 1 per 100 gm. for Salmonella of "ordinary" heat resistance. However, for heat-resistant organisms, such as *S. senftenberg*, not more than 1 organism in 40 gm. can be tolerated. Therefore, very low counts prior to pasteurization should be achieved. In liquid egg yolk, Salmonella organisms are about twice as stable to heat as in whole egg, apparently because of the lower *p*H, thus requiring about twice the pasteurizing time. In liquid egg white (high *p*H), one-third to one-tenth the time would be needed to kill Salmonella. However, because egg white is so sensitive to heat, it may be impossible to devise a satisfactory commercial pasteurization procedure.

FOOD SCIENCE ABSTRACTS

Vol. 26, July, 1954

* Dehydrofreezing of fruits and vegetables. W. F. Talburt and F. E. Lindquist.—p. 361.

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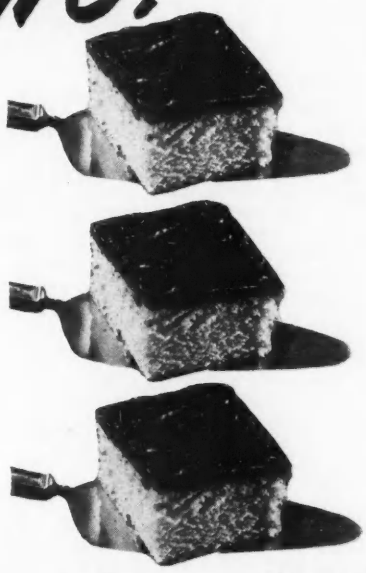

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dehydrofreezing for food preservation is contingent on a number of factors. From a standpoint of quality alone, it does not seem that dehydrofrozen products can compete against their conventional frozen counterpart, although in some instances, such as dehydrofrozen apples or apricots, partial dehydration may result in certain desirable characteristics not found in the frozen product. It seems more likely that the eventual place of dehydrofreezing in the field of food processing will be decided on the basis of the economies that can be achieved through its use.

FOOD TECHNOLOGY

Vol. 8, June, 1954

* Guiding principles for the solution of dietary problems of an aging population. C. S. Davidson.—p. 271.
* Trends in the development of foods for the upper-age groups. L. E. Clifcorn and G. T. Peterson.—p. 277.

Vol. 8, September, 1954

* Reliability of taste testing and consumer testing methods. I. Fatigue in taste testing. E. A. Laue, N. H. Ishler, and G. A. Bullman.—p. 387.
* Reliability of taste testing and consumer testing methods. II. Code bias in consumer testing. N. H. Ishler, E. A. Laue, and A. J. Janisch.—p. 389.

Nutrition in the Elderly. In discussing the general problem of nutrition in the aging, the author points out that in general a condition of undernutrition appears to exist in persons in the older age brackets. By the age of eighty and over, almost half the population is underweight and most of the remainder are normal. Only a few are "moderately overweight," and the number classified as "considerably" and "extremely" overweight are very small. Instances of specific nutritional deficiencies are also more common in the elderly. Thus senescence is often accompanied by failing nutrition. There is evidence that older folks need fewer calories and a higher proportion of high quality protein together with the vitamins associated with this protein, but data to substantiate this are badly needed. There is also some indication that intermediary metabolism is altered at least quantitatively and perhaps even qualitatively. It is possible that since older people are less able to withstand long fasting or feasting, small, frequent feedings during the waking hours would be better than the usual three-meals-a-day program. The author proposes a study to learn nutrition requirements for the aged, with a team composed of a physician, dietitian, and food technologist, working in collaboration with a food processing company and the aid of adequate psychiatric and social science consultants.

Trends in Foods for the Elderly. There is actually no established trend for foods for the elderly, outside of the increased use of low-sodium foods for high blood pressure and cardiovascular disturbances and low-calorie foods for weight control and diabetes. However, the authors foresee developments in this field and urge the National Research Council, the National Institutes of Health, the Nutrition Foundation, and the American Medical Association to continue to study the problem of geriatric foods and make recommendations to the food industry so that it can produce products which will benefit this segment of our population. Such developments might include packing puréed vegetables and fruits in a 303 can size; in St. Petersburg, Florida, the high sale of baby foods in proportion to the baby population indicates that many of the elderly persons living there are using these foods. However, if labeled "geriatric foods" or "foods for the aged," they would probably not buy such products because of embarrassment. If the package had a descriptive label and were of larger size than the baby-food sizes, the needs of the aged would be met at a saving in money to them. Other food that might be packed in this manner would be chopped foods and specially formulated stews. The food industry stands ready to meet the needs as they unfold.

Fatigue and Reliability of Taste Testing. The triangular test was used to measure the effect of taste testing. Fatigue seems prominent in the tasting of some types of food products, while it is practically negligible in others. In coffee tasting, fatigue did not occur, although it was a factor with beer and maple sirup.

Code Bias in Taste Testing. The practice of assigning codes—letter, number, a combination of both, or colors—in consumer testing is common. However, although the phenomenon of code bias is known to operate in such testing, no studies have been made on the subject. One organization believes that a bias is introduced by the code designations themselves and that there is a second bias due to the tester's individual preferences or situational factors, such as a person's own initials. A study is reported here which was designed to learn how code bias can be minimized. It was found that this can be done by selecting code pairs which have been demonstrated to show little bias and by reversing codes between halves of the testing. This reversing procedure tends to equalize code biases so that they no longer operate in favor of one sample at the expense of the other.

GERIATRICS

Vol. 9, August, 1954

* Chronic disease and vitamin C. L. J. Cass, W. S. Frederik, and J. D. Cohen.—p. 375.

Ascorbic Acid and Chronic Disease. A study of elderly people showed that whole blood ascorbic acid levels tend to be low—0.48, 0.49, and 0.43 mg. per 100 cc. for three mixed groups of 140 well and chronically ill patients, compared to the normal range of 0.6 to 2.5 mg. When given orange juice or ascorbic acid, the blood levels rose rapidly. For patients with arthritis, aspirin or ascorbic acid, or a combination of both, appeared to increase appetite, well-being and mobility, and to decrease pain. Aspirin plus ascorbic acid was more beneficial than aspirin alone. Those patients with multiple sclerosis, who were treated with large doses of ascorbic acid, also showed subjective and objective improvement. After ascorbic acid medication, ten reported an increase in well-being and eight an increase in strength. Those with speech defects claimed improvement in speech and intelligibility, which was noted particularly by relatives and nurses.

INDUSTRIAL MEDICINE AND SURGERY

Vol. 23, August, 1954

* Dermatoses among food handlers. G. E. Morris.—p. 343.

Dermatoses among Food Handlers. Of 2001 dermatological patients, 110 were food handlers. For 82 of these, the symptoms and conditions were judged to be due to something encountered in their work. Trauma and its overtreatment, soaps and detergents, and fungus infections of the hands were the most common causes of the lesions seen.

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

Vol. 2, August 4, 1954

* Antibiotics and nutrition. Effect of dietary aureomycin and different levels of protein on several phosphorus and nitrogen compounds in hams. R. L. Shirley, H. D. Wallace, and G. K. Davis.—p. 830.

Vol. 2, September 1, 1954

* Perspective: The farmer and the chemist. D. M. Hegsted and F. J. Stare.—p. 960.

Antibiotics and Nutrition. A study of the chemistry of tissues of animals fed dietary supplements of an antibiotic and different levels of protein is reported. In general, level of dietary protein seems to have a greater effect than chlorotetracycline (aureomycin) on the level of nitrogen compounds in the animal tissue.

The Farmer and the Chemist. A constant search for nutritional improvement of food products must be carried on. Much of the nutritional improvement of the future will come from nutrients purchased in the chemical factory. The farmer and the chemist together can do a better job of solving the problems of global nutrition than either one alone.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 155, July 31, 1954

* The psychiatric aspects of obesity. H. W. Brosin.—p. 1238.

Vol. 155, August 7, 1954

* The starvation state and functional hypopituitarism. W. H. Perloff, E. M. Lasche, J. H. Nodine, N. G. Schneeberg, and C. B. Vieillard.—p. 1397.

Vol. 156, September 11, 1954

* Injection of estrogens into animals used as food. Queries and Minor Notes.—p. 208.

Psychiatric Aspects of Obesity. The key to management of the grossly overweight patient is control of food intake. Moderate excess weight in puberty and in middle age is not necessarily related to emotional disturbances. To treat obesity, the physician needs some knowledge of why the person wants to

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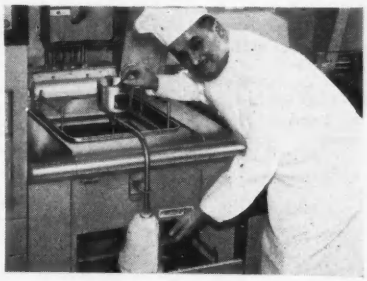

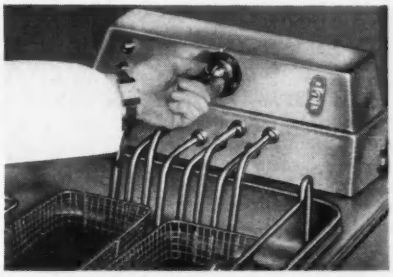

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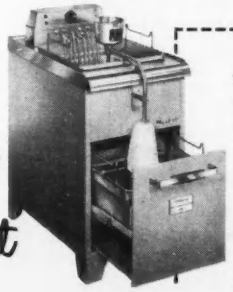

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reduce. While most persons have obscure regulators to prevent too much intake, obese patients obviously have different levels of satiation or sensations of having had enough. Current psychiatric belief holds that compulsive overeating is a meaningful process to attain a goal. The physician can embark on his investigation of these factors after his initial estimate of the situation following the preliminary physical examination and history taking. Four categories of overeating have been described: (a) as a response to nonspecific emotional tensions; (b) as a substitute gratification in intolerable life situations; (c) as a symptom of an underlying emotional illness, especially depressions and hysteria; and (d) as an addiction to food. Patients who use the first two mechanisms are relatively amenable to treatment, while those falling in the last two categories probably need psychiatric help. While many patients have some features in common, it is unsafe to generalize about common factors in a single case. Every patient is an individual whose life patterns are distinctive for him. The emotional input from the doctor in treating obesity of the deprived patient is an actual part of the management and must be so considered. Clinical judgment must be used to avoid putting the patient under too much pressure by exhortation, threats, promises, and ridicule, or the patient will show more severe symptoms even if weight loss is continuous for a limited time. The contrast between the patient's sincere intention to lose weight and his inner resistances to giving up the satisfactions of food can create tensions. The physician must devote time, energy, and a genuine, warm sensitivity to the patient's needs to detect the purpose behind the eating. A caution is given against overzealousness in weight-reducing programs for middle aged patients. If one takes away smoking, food, and alcohol from a delicately balanced person, then one must put something constructive in its place. If appropriate equivalent activities are not found, the patient, his family, and his business associates are put under stress.

Starvation and Hypopituitarism. Functional activity of the pituitary gland may be markedly impaired by starvation. This functional hypopituitarism differs from organic hypopituitarism only in that it may be reversed by refeeding and in that recognizable structural changes in the anterior lobe of the pituitary are either absent or slight compared with those found in hypopituitary cachexia, which requires endocrine replacement therapy. Some authors have speculated whether nutrition may eventually cause irreversible structural changes, but so far, this concept has not been substantiated. No one laboratory test or group of tests can be expected to be of definitive diagnostic significance in this condition, since one or all may be impaired by both conditions. Contrariwise, normal findings do not necessarily rule out organic disease. Therefore, the diagnosis may have to be reached by careful clinical history, physical examination, and considered clinical judgment. Five case histories of starvation are presented and findings evaluated in terms of gonadal function, thyroid function, adrenocortical function, and pituitary function.

Injection of Estrogens into Animals Used as Food. There is no reason to believe that the administration of estrogens, including diethylstilbestrol, in animals or birds should render the meat unfit for consumption. Adequate evidence indicates that these hormones are completely metabolized into inactive components within a few hours.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 209, August, 1954

* Altered metabolic patterns induced in the normal rat by feeding an adequate diet containing fructose as sole carbohydrate. R. Hill, N. Baker, and I. L. Chaikoff.—p. 705.

* Urinary excretion of ten amino acids by women during the reproductive cycle. S. Miller, V. Ruttinger, and I. G. Macy.—p. 795.

Vol. 210, September, 1954

C^{14}-cholesterol. VI. Biliary end-products of cholesterol metabolism. M. D. Siperstein, F. M. Harold, I. L. Chaikoff, and W. G. Dauben.—p. 181.

Cation antagonism of the antibacterial action of amines. R. A. MacLeod and E. Onofrey.—p. 193.

* The amino acid requirements of man. VI. The role of the caloric intake. W. C. Rose, M. J. Coon, and G. F. Lambert.—p. 331.

The growth-promoting effect of certain amino acids for *pyrimidineless Neurospora* mutants.—p. 347.

A study of formate production in normal and folic acid-deficient rats. S. Weinhouse and B. Friedmann.—p. 423.

Metabolism of cardiac muscle. VIII. Pyridoxine deficiency. M. Brin. R. E. Olson, and F. J. Stare.—p. 435.

Amino acid formation and utilization in *Neurospora*. I. Andersson-Kottö, G. Ehrensvärd, G. Högström, L. Reio, and E. Saluste.—p. 455.

Glucose vs. Fructose. After fasting or the feeding of a diet deficient in carbohydrate, animals lose their tolerance for glucose, as demonstrated by response of the blood sugar level. Apparently frequent ingestions of adequate amounts of carbohydrate are needed to keep the mechanisms for glucose disposal active. The study reported here indicates that this phenomenon is specific for glucose. When large amounts of fructose were fed to normal rats as the sole carbohydrate in an adequate synthetic diet, a loss in capacity to utilize glucose ensued, which was apparently similar to that in the fasted rat. Further study of utilization of glucose, fructose, and acetate by the liver, kidney, and brain, and of glucose uptake by the diaphragm, suggests that the decrease in glucose tolerance observed in fructose-fed rats is due to impaired liver glucokinase activity. This finding is discussed from the standpoint of an enzymatic adaptation to diet.

Amino Acid Excretion in Reproductive Cycle. This study reports progressive metabolic response during pregnancy and lactation, as indicated by urinary excretion of amino acids. Urinary samples obtained prior to pregnancy, during pregnancy, and during lactation were analyzed for ten "free" amino acids. The median value for each amino acid increased from the non-pregnant to the pregnant state, threonine as much as 350 per cent, and arginine only 6 per cent. Increased excretion occurred by the second month of gestation. During lactation, the excretion of each amino acid decreased from the levels during pregnancy, and each was excreted in smaller amounts than during non-pregnancy, ranging from 50 to 70 per cent. Threonine, histidine, lysine, and tryptophan showed the greatest changes during transitions from one phase of the reproductive cycle to another.

Amino Acid Requirement of Man. This investigation was carried out to compare the effects of constant intakes of nitrogen from different sources on caloric requirements of man. Comparisons were made of caloric intakes needed for nitrogen balance in human subjects receiving diets containing, respectively, casein, hydrolyzed casein supplemented with tryptophan, and mixtures of pure amino acids. The subjects were maintained readily on rations furnishing 35 calories per kilogram body weight per day when whole casein was the nitrogen source. At this same level, negative nitrogen balance occurred promptly in two of three subjects receiving a hydrolyzed casein. With the purified amino acid mixtures, each subject experienced nitrogen loss until his caloric intake was raised above the level found adequate with whole casein. There was no difference in response between a mixture containing all the amino acids which are components of casein and a mixture of only the eight essentials supplemented with additional sources of nitrogen. The data appear to demonstrate conclusively that diets containing amino acid mixtures require higher caloric intakes for nitrogen balance than do like rations carrying whole casein.

THE JOURNAL OF CLINICAL INVESTIGATION

Vol. 33, August, 1954

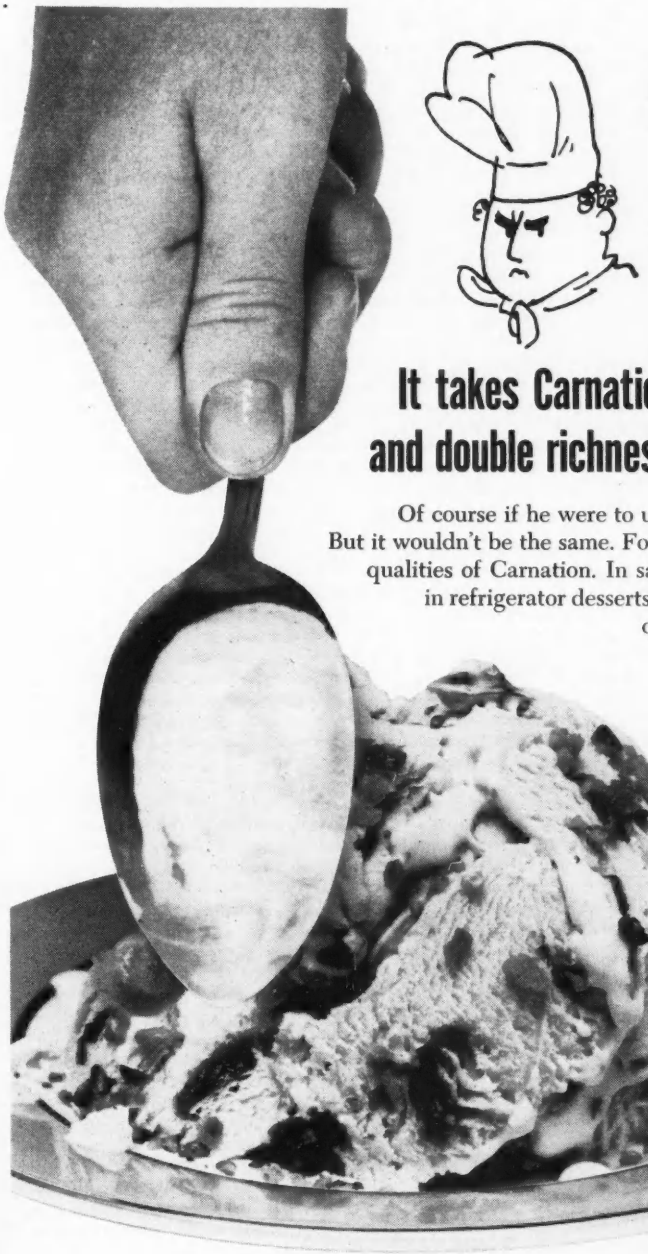
* Some postural adjustments of salt and water excretion. M. L. Pearce and E. V. Newman.—p. 1089.

Postural Adjustments of Salt and Water Excretion. In the normal human subject undergoing moderate water diuresis, quiet standing results in a slight depression of creatinine clearance and a marked depression of sodium, chloride, potassium, and water excretion as compared with control measurement in the supine position. If the legs are wrapped with elastic bandages before the orthostatic position is assumed, the depression of salt excretion is inhibited with varying effect on the antidiuresis. On the other hand, administration of alcohol inhibits the orthostatic antidiuresis and enhances the orthostatic inhibition of salt excretion. It is suggested that there are separate postural adjustments of water and salt excretion, the former under diencephalic posterior pituitary control and the latter under the control of some mechanism sensitive to the distribution of interstitial fluid.

JOURNAL OF NUTRITION

Vol. 53, June, 1954

* Nitrogen balance and hemoglobin of adult rats fed



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More and more fine cooks are discovering the many advantages of using this better-blending milk that also whips. Naturally we'd like *your* chef to make this discovery too. There's no more convincing recipe than this super-smooth, crystal-free Nesselrode Frost. Why not have him try it. *Soon!*

CARNATION NESSELRODE FROST

(Makes about 1 quart)

- ¾ cup sugar
- 2 tablespoons cornstarch
- ¼ teaspoon salt
- 1 ⅔ cups (large can) *undiluted* CARNATION EVAPORATED MILK
- ⅓ cup water
- 1 teaspoon almond flavoring
- 1 tablespoon lemon juice
- ⅓ cup well-drained chopped red maraschino cherries
- ⅓ cup well-drained chopped green maraschino cherries
- ¼ cup chopped toasted almonds

Combine ¼ cup sugar, cornstarch, salt, ⅔ *cup* Carnation and water in saucepan over low heat, stirring constantly (about 6 minutes), until thickened. Add almond flavoring and cool. Chill *remaining 1 cup undiluted* Carnation in refrigerator tray until soft crystals form through milk (about 15-20 minutes). Whip chilled Carnation until stiff (about 1 minute); add lemon juice. Whip *very* stiff (about 2 minutes longer). Fold *whipped* Carnation into pudding mixture; add cherries, remaining sugar and almonds. Freeze until firm in refrigerator trays or serving dishes. Sprinkle with more toasted almonds, if desired.

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amino acid diets low in L- and D-histidine. E. S. Nasset and V. H. Gatewood.—p.163.

* Experimental rat caries. V. Effect of fluorine on the caries-conduciveness of a purified ration. J. H. Shaw and R. F. Sognnaes.—p. 207.

* Fluorine balance studies on four infants. M. P. Ham and M. D. Smith.—p. 215.

* Fluorine balance studies on three women. M. P. Ham and M. D. Smith.—p. 225.

* The vitamin B_{12} content of milk products. J. B. Hassinen, G. T. Durbin, and F. W. Bernhart.—p. 249.

Studies on the influence of antibiotics and methionine on nitrogen utilization and basal metabolism of the growing male albino rat. R. M. Forbes.—p. 275.

Vol. 53, July 10, 1954

* Iron from gastrointestinal sources excreted in the feces of human subjects. R. L. Ingalls and F. A. Johnston.—p. 351.

* Vitamin B_{12} content of organ meats. H. E. Scheid and B. S. Schweigert.—p. 419.

Histidine, Nitrogen Balance, and Hemoglobin. The nitrogen balance of adult, male Wistar strain rats was adversely affected by severe reduction of histidine in the amino acid mixture that supplied all of the dietary nitrogen. The essentiality of histidine for efficient maintenance of nitrogen balance was most clearly demonstrated in rats fed a complete amino acid mixture which contained the same proportion of histidine as that in the proteins of whole egg. All animals fed this diet were in positive nitrogen balance. When histidine was removed, the nitrogen balance was decidedly negative. With a diet containing half of the maintenance requirement of total nitrogen, nitrogen equilibrium was essentially reached. Even in the absence of histidine, statistical analysis indicated fairly efficient usage of dietary nitrogen. This, therefore, suggests that either the adult animal does not require preformed histidine for the utilization of dietary nitrogen, or any dietary deficit of histidine is made up from a readily available endogenous source. Reduction in histidine did result in a reduction of hemoglobin of as much as 20 per cent. Certain intakes of histidine which were adequate for attainment of positive nitrogen balance were inadequate for its maintenance. The possibility of quickly drawing on the histidine of hemoglobin to meet acute metabolic needs for this amino acid suggests that the apparent dietary requirement as determined by the nitrogen balance might be proportional to histidine intake. Perhaps the total requirement could be met from the combined dietary and endogenous sources. The discrepancy between adult rats and human beings with respect to histidine requirement may be due in part to the length of the feeding periods. To get comparable results in man might require feeding periods of many weeks or even months.

Fluorides and Caries Prevention. Extensive carious destruction has been produced in Norway rats of the Long-Evans strain which were raised on a generally adequate purified ration, in spite of the addition of 6 or 25 p.p.m. fluorine, as sodium fluoride, during the period before tooth eruption. After the completion of tooth development, the same diet did not result in any reduction in caries incidence. The absence of caries which has been previously reported in rats fed natural stock diets during the period of tooth development cannot be satisfactorily explained by the fluoride content of those diets. While fluorides unquestionably modify the caries picture under certain conditions, these data suggest that there are other minerals or ratios of minerals which are major factors in determining the difference between sound and carious teeth.

Fluorine Balance in Infants. Because infants may ingest bonemeal-containing cereals, such as Pablum, which have a rather high fluorine content, a balance study using four infants as subjects was conducted. During the first three-day period, milk formulas alone were fed to the babies, while in the experimental period, milk formulas plus Pablum were used. The addition of Pablum considerably increased the amount of fluorine ingested, and the results indicated that generally the fluorine was retained to some extent. Both the percentage retention and absolute amounts retained appeared greater in each case during the experimental period. Range of retention with the Pablum diet was 88 to 362 mcg. fluorine (17 to 51 per cent) on intakes ranging from 476 to 706 mcg.

Fluorine Balance in Young Women. Fluorine balance in three young women, twenty-three and twenty-four years old, was studied. In the first period, the subjects consumed a normal diet, avoiding materials high in fluorine, such as tea and fish. In the second period, they ate a diet which included approximately 70 gm. Pablum per day, and in the last period, the diet included 1360 to 1815 ml. tea infusion. In all three periods, there was retention of fluorine which, when figured as percentage of intake, was in the same range, regardless of intake, although absolute intake increased with fluorine intake. However, with the intake of Pablum, fecal excretion of fluorine was greater than urinary, whereas when tea was drunk, the reverse was true. The fluorine in the tea was absorbed to a greater extent, even though total fluorine intake was comparable to that when Pablum was eaten. Absolute retention with tea drinking ranged from 274 to 658 mcg. fluorine, as compared with a range of 48 to 943 mcg. when the diet included Pablum.

Vitamin B_6 in Milk Products. Because of the importance of vitamin B_6 in human nutrition, particularly infant nutrition, an investigation is reported which studied (a) vitamin B_6 content of processed milks, including commercial infant formulas; (b) the effect on vitamin B_6 content of heat processing needed for sterilization of canned liquid milk products, and (c) the heat stability in milk of pyridoxal, pyridoxamine, and pyridoxine. The following products were studied: evaporated milk, sterilized liquids; infant formulas, sterilized liquids; sweetened condensed milk; infant formulas, spray dried; whole milk, spray dried. The vitamin B_6 content of all canned liquid milk products was found to be considerably lower than that of cow's milk. In contrast, the spray-dried milk products, when reconstituted (with one exception) contained only slightly less vitamin B_6 than originally contained in the milk used in their preparation. The loss in the heat-sterilized liquid milk products was found to occur only during heating at the elevated temperatures needed for sterilization. In an effort to determine the feasibility of vitamin B_6 fortification, in view of the losses incurred at sterilizing temperatures, an effort was made to determine the feasibility of vitamin B_6 fortification. Pyridoxine was found to be more resistant to heat inactivation than pyridoxal, pyridoxamine, or the naturally occurring vitamine B_6 in milk, and enough was retained to make such fortification worth while. At present, one processor of commercial infant formulas is making use of this technique.

Fecal Iron from Gastrointestinal Sources. Young women were given diets with mean contents of 1.03, 2.15, and 3.22 mg. iron respectively during three eight-day periods. The iron in the food and feces and the nitrogen in the food, feces, and urine were determined. The mean value for daily gastrointestinal iron in the feces, calculated by two methods, approximated 0.2 mg.

Vitamin B_{12} in Organ Meats. The vitamin B_{12} potency of composite samples of liver, kidney, pancreas, spleen, heart, and lung from beef, pork, and lamb, and of brain and liver from old cows and sows was determined by microbiologic assay. Liver and kidney were found to be the richest source of the vitamin, and the meats of beef organs were higher in vitamin B_{12} potency than those of pork.

JOURNAL OF PEDIATRICS

Vol. 45, August, 1954

* A study of early and later introduction of solids into the infant diet. R. W. Deisher and S. S. Goers.—p. 191.

Solids in the Infant Diet. A study was made to compare the progress of eighty-five infants from similar backgrounds who were fed solids in the first four weeks of life and of a second group who did not receive such foods until the ninth to twelfth week. Growth in the two groups was similar, as were the number of illnesses, character of stools, number of stools, incidence of diarrhea, constipation, colic, excessive regurgitation, and number of food refusals. A test of significance applied to the mean hemoglobin and red blood cell determinations revealed no significant differences.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 54, August 15, 1954

* Some considerations in the surgical treatment of peptic ulcer. E. Milch, W. F. Lipp, and A. H. Aaron.—p. 2315.

Surgical Treatment of Peptic Ulcer. Six, small, carefully regulated feedings in the immediate postoperative period following gastric resection will prevent the dumping syndrome and thus eliminate one of the chief objections to the surgical treatment of peptic ulcer.

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INSIDE SCIENCE

The Vital Story of VITAMIN C

by Science Writer

What does vitamin C do for human beings?

Medical research shows that it is essential in maintaining healthy bony tissue and for the formation of collagen which is the main supportive protein of skin, tendon, bone, cartilage and connective tissue. It is needed for vascular function and tissue respiration and in promoting the healing of wounds. In lactating women it has great importance in providing the infant with a sufficient amount of ascorbic acid to prevent scurvy, a disease to which very young babies are susceptible.

Much evidence is available in medical reports to show that a lack of this vital nutritive element can result in impaired health. And in those cases of frank scurvy which still occur, ascorbic acid is the specific medication.

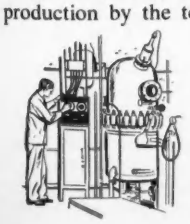
History. The history of vitamin C is fascinating. Scurvy, known for centuries, was once the most prevalent disease in Europe. It afflicted the Crusaders, decimated the crews of voyagers and armies, and plagued the colonists of the New World. In the 18th Century the antiscorbutic value of fresh vegetables and citrus fruits was recognized.

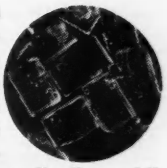
Isolation. It was not until 1918-25 that almost pure ascorbic acid was concentrated from the lemon by Zilva and its important properties and molecular composition established. In 1927 he concluded that this so-called "reducing factor" and the antiscorbutic principle were closely related. In 1928, Szent-Györgyi, who started investigations in 1921, isolated a strong reducing compound from adrenal glands, oranges, and cabbage and termed it "hexuronic acid."

Chemistry. The "reducing factor," "hexuronic acid," and vitamin C were all identified as the same in 1932 by various groups of workers. This was one year after C. G. King, by methods of organic chemistry and experimental physiology, established the chemical identification of vitamin C, thus fulfilling Budd's prediction of 90 years earlier that the antiscorbutic property of certain foods would ultimately be discovered to be a definite substance.

Synthesis. In 1933 Reichstein and his colleagues in Switzerland successfully synthesized ascorbic acid. Almost simultaneously in England Haworth and associates accomplished the same. The Reichstein synthesis formed the basis for large scale commercial production by the world-famous firm of Hoffmann-La Roche.

Production. Following these discoveries came the establishment of manufacturing operations so that today daily production by the tons is the rule. The figures are really staggering. The amount produced weekly in the U. S. A. averages over 15 tons, equivalent to that contained in over 200 million oranges. It is remarkable that ascorbic acid can be produced synthetically and sold for only about $16. per kilogram. One kilo is sufficient to supply 92 people for one year with the minimum daily requirements set by the U. S. Food and Drug Administration.





Vitamin C made by the Roche process is identical chemically and in biological activity with Nature's own product. Because vitamins can be manufactured at a much lower cost than if they were extracted from natural sources they are widely used in dietary supplements and pharmaceuticals. In fact, "New and Non-official Remedies," a publication of the American Medical Association for use by physicians states: "All pure ascorbic acid used in pharmaceutical products is prepared synthetically."

Ascorbic acid is present in many foods. Nature supplies some with lavish amounts and stints on others. In fact, wide variations* have been found in the vitamin C content in varieties of the same fruit.

Deficiencies. Many surveys have shown widespread vitamin C deficiencies in the population. Physicians may call these subclinical, but they are deficiencies nevertheless.

Because of these situations—natural variation and widespread deficiencies—diet experts believe that it is desirable and in the public interest to standardize the vitamin C content of processed fruit and vegetable juices by the addition of enough pure crystalline ascorbic acid to make them consistently dependable sources of this necessary food element. Some of these juices are: tomato, grape, orange, grapefruit, pineapple and apple.

Requirements. The U. S. Food & Drug Administration has set 30 milligrams as the adult minimum daily requirement of ascorbic acid. This daily intake is just about sufficient to prevent recognizable signs of vitamin C deficiencies although a subclinical or an unrecognized deficiency may exist. In view of this, the National Research Council has established 75 milligrams as the recommended daily male adult allowance and 70 mg. daily for female adults, which levels are supported by many controlled nutrition studies. However, the N. R. C. recommends 90 mg. daily for boys between 13 and 15, 100 mg. daily for boys between 16 and 20, and 150 mg. daily for lactating women.

This article is published in the interests of pharmaceutical manufacturers and food processors who make their good products better with essential, health-giving vitamin C. Reprints are freely available. Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. In Canada: Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec.

*The table shows minimum and maximum levels of ascorbic acid in commercially canned juices. All figures are in milligrams per 100 grams of juice. Data from U. S. Department of Agriculture.

	Min.	*Max.*
Apple juice	0.2	3.6
Grape juice	0.0	4.7
Grapefruit juice	10.0	49.0
Orange juice	9.7	70.0
Pineapple juice	5.4	18.0
Tomato Juice	2.5	32.0

[*Advertisement*]

Taking a large amount of food is discouraged, particularly in the morning. Liquids, whenever possible taken at a different time than solid foods, are also of benefit. If over-distention is prevented, the dumping syndrome is rarely seen. At the end of two or three months, the patient is usually able to eat and drink anything he desires with no restriction.

NURSING OUTLOOK

Vol. 2, July, 1954

* Dinner at five. M. A. Richardson.—p. 359.

* Senior citizens go camping. F. Bracken.—p. 360.

* Food-borne diseases. V. A. Getting.—p. 364.

Vol. 2, August, 1954

* The case of the cold pancake. M. Decker and H. N. Lovell.—p. 418.

Making communications effective. E. H. Doane.—p. 420.

Meal Hours in the Hospital. At the Bridgeport (Connecticut) Hospital, it was evident that the time-honored hospital practice of serving "dinner" at noon and "supper" in the evening was unpopular with both patients and personnel. The patients' normal routine of living prior to hospitalization was to have a heavy meal in the evening, and they complained both that they were not hungry enough at noon for a large meal and that they became hungry in the evening after a light supper. Thus, when the desirability of switching the meal pattern was recognized, a committee representing the administrative, dietary, and nursing staffs was formed to explore the feasibility of the change. At first the problem of personnel scheduling seemed impossible, but it was finally worked out so that the nursing department increased the ward aide service by employing high school girls in the late afternoon, and comparable adjustments were made in the dietary department. The change was made in July, 1953, and now lunch is served to the patients and in the cafeteria at noon and at 10:30 p.m., and the dinner hour is at 5:00 p.m. Both patients and personnel seem more satisfied with meal hours which conform to their usual habits.

Camping for the Aged. In Baltimore, the City Department of Public Welfare began operating a summer camp for elderly Negroes in 1953. Facilities for a children's camp are used after the children's sessions have ended. Campers in 1953 numbered forty-six, with ages ranging from seventy-three to one hundred five years. All were given a medical examination before acceptance. The welfare department's home economist served as administrative officer of the camp. Other personnel included a camp director, three kitchen employees, a chauffeur, and a handyman. Arrangements were made to have medical care available from the community, if needed. In planning the dietary services, the home economist was able to purchase food at a discount from local stores. The food was then transported to the camp in the camp truck. Emphasis was on appetizing meals which are easily digested and which are adapted to the campers' eating pattern and preferences. When cornbread proved extremely popular, the cooks cancelled the regular bread orders and made corn bread for almost every meal. Because several campers were unable to eat salted foods, on their doctors' orders, a special table was set aside for them, and portions were taken out of the cooking pots before seasonings were added. The camping program included quiet planned recreation suited to the campers' abilities. The article concludes with a description of some of the recreational activities, the camp organization and problems, and an appraisal of the over-all program.

Food-Borne Diseases. The three main types of food-borne disease are: (a) food infections, in which the causative agent is a living microorganism, for example, Salmonella; (b) food infestations due to a living organism, such as an ameba or helminth; and (c) true food poisoning caused by noxious substances, which may be classified as: endogenous poisons such as mushroom poisoning or oxalate poisoning from rhubarb leaves; organic exogenous poisons, such as botulinus toxin or Staphylococcus enterotoxin; and inorganic exogenous poisons which are usually added accidentally, such as cadmium, roach powder, or arsenic. Of the cases of "food poisoning" occurring between 1945 and 1947 in the U. S., Staphylococci were responsible for five times as many outbreaks involving four times as many patients as the next most common cause, Salmonella. Bacillary dysentery (Shigellosis) was almost as common. The author outlines ways in which food may become infected, i.e., with Staphylococci from food handlers, with trichinae in pork, by mistaking roach powder for nonfat dry milk, and with botulinus toxin during home canning. Longer discussions are presented on Staphylococcus enterotoxin poisoning, Salmonella food infection, and Shigella dysentery, followed by practical control measures to prevent food-borne diseases. The nurse has an opportunity to advise good food handling practices in the homes she visits and to improve the serving of food in churches, schools, and other semi-public social events through speeches to groups. Methods of investigating actual outbreaks are briefly outlined.

Community Nutrition Education Program. In Harrison County, Iowa, a community education program in nutrition is being conducted to improve the diets of the population. First step in the program was a dietary survey which indicated that 45 per cent of the diets were poor and 25 per cent were only fair. Further breakdowns showed that children—particularly teenagers and those from eight to twelve years old—were particularly in need of better diets. First step in the educational program was to show rats at the county fair, one of which had been fed whole milk and enriched bread, the other carbonated beverages and unenriched bread. These rats were later used in displays at schools. Other parts of the program were planned to dovetail with the over-all objective and have included a workshop on nutrition for teachers, a puppet show featuring six obviously malnourished and unhealthy puppets, and a nutrition workshop for club leaders.

PUBLIC HEALTH REPORTS

Vol. 69, August, 1954

* Bacteriological control of oysters during processing and marketing. C. B. Kelly and W. Arcisz.—p. 716.

Cariostatic effect and metabolism of ammonium fluosilicate. I. Zipkin and F. J. McClure.—p. 730.

Bacteriologic Control of Oysters. Bacterial content of oysters as they proceed through shucking, packing, and transportation operations to the market was studied. Increases in bacterial content occurred during shucking. Examination prior to shucking showed that the meats were usually of good bacteriologic quality. U. S. standards, as set up by the Public Health Service, called for 230 MPN (most probable number) of coliforms per 100 ml. in oyster shell stock sampled at the growing area, or in shell stock or shucked oysters at the point of shucking. The standards suggest, however, that in occasional samples a coliform MPN value of 2400 may be tolerated. In these tests, only 28 per cent of the shucked samples fell within this tolerance level, none were below 230, and 72 per cent were above 2400 MPN. As sent to the market after further processing, the percentage of unacceptable samples (above 2400 MPN) was reduced to 54 per cent, with 46 per cent falling within the acceptable range of 230 to 2400. Again no samples were less than 230. The exact cause of the bacterial increase during shucking cannot be attributed to poor sanitary practices in the shucking room, because samples shucked under controlled commercial conditions known to be clean had a similar bacterial increase. The more serious source of contamination, therefore, is apparently the mud and detritus adhering to the exterior of the shells. Contamination from this source would be eliminated only by thorough washing of the shell stock at the time of harvest and before transfer to the shucking bins. There was a general reduction in bacteria as the oysters proceeded through the processes of washing and packing which follow shucking, although the bacterial level was never reduced to that of the shell stock.

THE REPORTS OF THE RESEARCH INSTITUTE FOR TUBERCULOSIS AND LEPROSY

Vol. 5, January, 1954

* Electrophoretic studies on the protein distribution in the serum of leprosy patients: role of the serum gamma-globulin on the tuberculostatic activity of the whole blood. A. Mayama.—p. 273.

* Serum protein in pulmonary tuberculosis. H. Kanagami.—p. 333.

Protein Distribution in the Serum of Leprosy Patients. Almost no differences were demonstrated in electrophoretic findings between the healthy persons and neuro-macular patients

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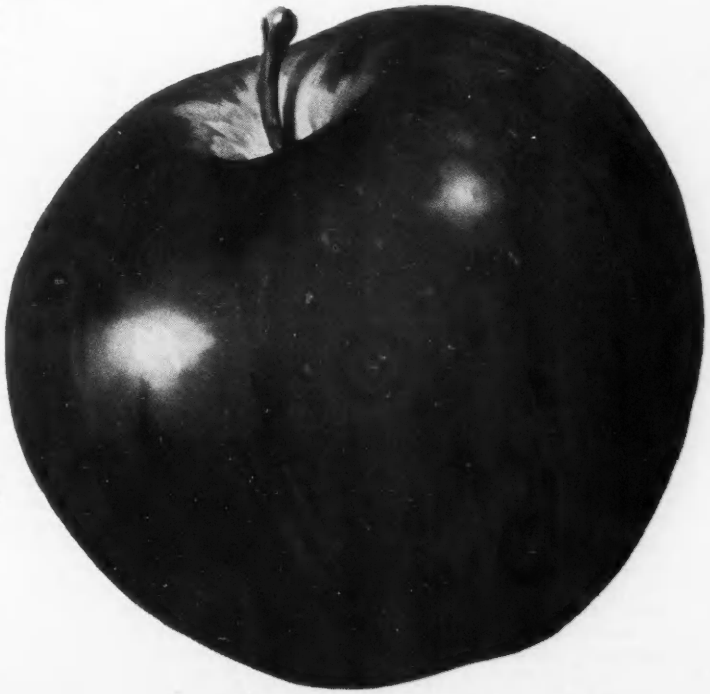

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except far advanced cases. In lepromatous patients, elevation of total serum protein, a decrease in albumin and an increase in gamma globulin were demonstrated, but no relationship could be established between these findings and clinical conditions. In lepromatous cases with complication of "erythema nodosum leprosum," however, more characteristic findings were obtained, i.e., remarkable decrease in albumin and significant elevation in gamma globulin with a rise in total serum proteins. No parallelism between gamma globulin component and tuberculostatic activity of the blood has been confirmed so far in leprosy patients.

Serum Protein in Tuberculosis. Electrophoretic analyses of serum protein were carried out on 200 patients with pulmonary tuberculosis. Serum protein components were found to have not only a close relation to the blood sedimentation rate, the extent of the disease, and the prognosis of the patient but also an important position in evaluating the course of the patient treated with chemotherapy or surgery and the effect of the treatment. For instance, an increase of albumin and a decrease of alpha and gamma globulin means a good prognosis, whereas the reverse indicates poor prognosis.

THE ROYAL SANITARY INSTITUTE JOURNAL

Vol. 74, August, 1954

* Brucellosis in animals and man: its cause, nature and prevention. A. W. Stableforth.—p. 686.

Brucellosis in Animals and Man. Outstanding points in the history and nature of brucellosis are described. In Great Britain the only important problem is *Br. abortus* in cattle and consequent human infection. Raw milk and cream are common sources of infection. Following vaccination with Strain 19, excretion of brucella in the milk and contamination of market supplies has been reduced.

SCIENCE

Vol. 120, August 27, 1954

* Failure of the newborn pig to utilize dietary sucrose. D. E. Becker, D. E. Ullrey, S. W. Terrill, and R. A. Notzold.—p. 345.

Vol. 120, September 3, 1954

* Identification of the so-called "lard factor" as vitamin A. S. R. Ames and P. L. Harris.—p. 391.
* A single diet for all living organisms. T. D. Luckey.—p. 396.

Vol. 120, September 10, 1954

* Effect of high fat feedings on viscosity of the blood. R. L. Swank.—p. 427.

Vol. 120, September 17, 1954

* Potassium and sodium balance in mammalian red cells. R. E. Bernstein.—p. 459.
* Studies on the plasma proteins in the interstitial fluid of muscle. D. Gitlin and C. A. Janeway.—p. 461.

Utilization of Sugars. This experiment indicated that the newborn pig lacks the ability to hydrolyze the glycosidic bond of sucrose. An intestinal sucrase accomplishes this feat in the older mammal. Piglets fed invert sugar showed satisfactory survival comparable to glucose-fed pigs, although the latter were superior in terms of rate and efficiency of weight gain.

Identification of "Lard Factor" as Vitamin A. The investigators have shown that the postulated "lard factor," announced by Kaunitz and co-workers in 1950, is in reality vitamin A. Vitamin A has been found in amounts sufficient to account for the vitamin-A bioactivity of lard distillates.

Single Diet For All Living Organisms. Research has shown that although the kinds of foods eaten by man and animals are different, the essential constituents of these rations are largely the same whatever the species. The general principles of nutrition are identical. Thus, in theory, it may be possible to nurture all species with one diet. Ideally, this universal diet should contain all nutrients in an available state, with each nutrient in such quantity that it will satisfy the minimum dietary requirement for satisfactory growth, reproduction, and maintenance of all species without eliciting serious toxic reaction in any. Fired by this concept, the author has developed "Universal Diet No. 1," which includes: large amounts of vitamins to satisfy any extraordinarily high requirements that might be encountered; salt to meet requirements of chicks and guinea pigs, fiber for rabbits, high protein for chicks, and fat for dogs. Sugar was added to give good acceptability. To date, satisfactory growth rates have been obtained with thirteen animal species and tomato plants. Guinea pigs and snails have been carried through reproduction, and four consecutive generations of mice and cockroaches have been fed the diet. Acceptance of the concept and the eventual use of a universal diet would give proper perspective to the place of nutrition as a common denominator of biology.

High-Fat Intake and Blood Viscosity. Hamsters were fed a diet containing about 50 per cent of their calories as animal fat for five to seven days. They were then given a single fat meal of 2 to 3 ml. of 35 per cent cream. Almost always, the experimental animals exhibited an increased viscosity of the blood. If in human beings, large fat meals are followed by aggregation and adhesiveness of the red blood cells with slowing of circulation and an increase in the relative viscosity of the blood, this mechanism may be a factor in human disease.

Potassium and Sodium Balance. Estimations performed by flame spectrophotometry of the red cell potassium and sodium content for nine mammals showed considerable species variation. The mechanism of distribution of potassium and sodium is different from that of chloride or bicarbonate.

Plasma Proteins in the Interstitial Fluid of Muscle. The ratios of serum protein to interstitial plasma protein would appear to substantiate the opinion that the lymph protein concentrations are representative of the protein concentrations of the interstitial fluid. The presence of such relatively large quantities of plasma protein in the fluid outside the capillaries serves to modify quantitatively the balance of forces influencing the transfer of water and solutes across the capillary wall.

SOUTH AFRICAN JOURNAL OF CLINICAL SCIENCE

Vol. 5, January, 1954

* Some aspects of the serum protein pattern of Africans. L. Arens and J. F. Brock.—p. 20.
* A comparison of the serum protein, "liver function tests" and serological tests for syphilis in newborn African and European infants and their mothers. I. Bersohn, S. Wayburne, H. Hirsch, and C. D. Sussman.—p. 35.

Serum Protein Pattern of Africans. A study was made of chemical fractionation of the serum proteins of 100 Cape Town Bantu (Africans) who were free from tropical diseases. The values were compared with those of Cape Town Europeans. Principal differences were lower serum albumin and higher total globulin and gamma globulin in the Africans. These differences between apparently healthy non-tropical Africans and Europeans are not necessarily genetic. Prolonged protein malnutrition and latent liver disease still must be excluded as causative factors. Further comparisons showed the serum protein fractions of the Cape Town Bantu to be intermediate between and significantly different from the Europeans and tropical Uganda Africans.

Serum Protein in African and European Infants and Mothers. It was found that the albumin and globulin levels of African and European infants does not differ, although the gamma globulin content and total serum protein of the African infant is significantly higher. On the other hand, no significant difference in total serum protein was found between the mothers of the two races, although European mothers had significantly higher albumin levels and African mothers significantly higher globulin levels. Alkaline phosphatase was significantly higher in the African infant, although there was no significant difference between the African and European mother. Since the serum protein values and some of the liver function tests in adults of the two races differ considerably and those of the infants are identical, genetic factors are not responsible for the differences. It becomes important to learn at what stage of life these deviations from normal begin and, if possible, to determine the underlying causes. Preliminary work now being done suggests that poor nutrition is an important factor.

TEXAS STATE JOURNAL OF MEDICINE

Vol. 50, July, 1954

* Diarrhea in San Antonio. S. R. Kaliski and L. J. Geppert.—p. 477.

Diarrhea in San Antonio. The quality of care an infant has received before he contracts diarrhea influences both morbidity and prognosis. Fifty-three per cent of 1004 infants hospitalized for diarrhea were markedly under-

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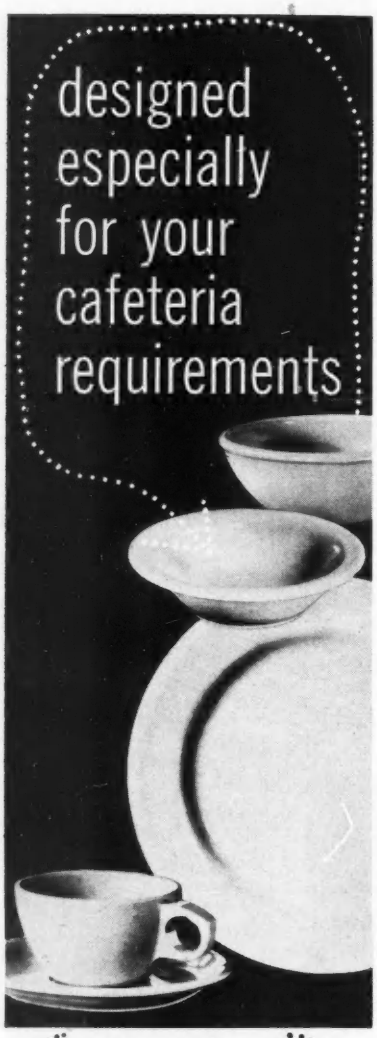

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weight, and 80 per cent of the infants who died were at least 25 per cent underweight prior to the onset of the illness. Poor nutritional status was indicated by anemia, 39 per cent of these babies having less than 10 gm. hemoglobin per cubic milliliter at admission. Hemoglobin was less than 7 gm. in 7 per cent of the infants. Morbidity and mortality can be correlated with the infants' previous nutritional state, and prognosis is particularly unfavorable to Latin American infants less than one year of age and to grossly underweight infants. Thus, in its broader aspects, infant diarrhea is to a large extent a socio-economic disease.

ADULT LEADERSHIP

Vol. 3, September, 1954

* Television has an impact? M. Maloney.—p. 2.
* Growing into leadership. L. L. Patterson.—p. 8.
* Human relations in the formal organization. M. R. Goodson.—p. 14.

Television Has an Impact? If present estimates are correct, about half the nation is concerned with television, and they can be divided into three groups: (a) people who use television—the advertisers, station managers, agency men, script writers, actors, and so on; (b) people who watch television; and (c) a small, vocal, mixed collection of parents, educators, television critics, and the like who constantly raise the question, "What is television going to do to our society? Or our children? What is the impact of television?" In asking these questions, it is assumed that television is either good or bad. The author, who is a communications specialist and a writer for radio and television, challenges some of the most common assumptions about the mass media. The same question was once asked about movies, radio, comic books, jazz, pulp magazines, and dime novels, and they, like television, were only an aspect of a social complex. Television is simply an electronic device, like the mass media of radio, designed to transmit or preserve different kinds of symbols. The symbols, however, depend on the people who watch them for translation. In other words, television is a sort of culture—it is designed for *everybody*. As long as people watch television, it will continue. It will change with the habits, taboos, likes, and dislikes of the viewers, and it will reflect all of society. This article puts a new slant on the criticisms of television and contains an interesting section on the "symbol worlds of TV."

Growing into Leadership. How does leadership begin? For the author, who is a leader in the National Association for Retarded Children, it began when she was mired in self-pity, trying to escape a problem—that of her own child, a mentally retarded boy. She knew little about retarded children when her boy was born, and, as she tried to find information about such children, she found that very few people had taken the time to publicize such information. Because of this, she became a leader in the National Association for Retarded Children. Her story shows how she grew into leadership and how this growth can be applied by others through her "10 Commandments for a Leader": 1. Know and keep up with your subject. 2. Employ professional guidance. 3. Seek to learn from leaders in your own and other groups. 4. Know yourself. 5. Have confidence in yourself but be prepared to make mistakes. 6. Acquire the tools and "know-how" for the specific job. 7. Set up good communications—up, down, and sideways. 8. Don't spread yourself too thin, with excessive responsibilities. 9. Develop good human relations with your public, your peers, and the "little people" in your group. 10. *Think!*

Human Relations. This article discusses the many formal organizations that occupy much of the adult's life today. These organizations are found in the home, school, church, hospital, business, factory, professional office, government, and various community and service functions. A person is either born into an organization, such as the home, or he joins an organization, such as a club. One of the most important aspects of the formal organization is the contrast between formal and informal human relations. Both are necessary, and there must be a balance between them, for a person can not bear for long, relations organized solely on a formal basis. This article tells why such a balance is important and how this balance can be successfully achieved.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 17, September, 1954

* Table service is important. P. F. Gooselaw.—p. 49.

Table Service Is Important. A college or university, large or small, that has the responsibility of feeding hundreds or maybe thousands of men and women three meals a day, finds that cafeteria-style service is much more economical than table service. However, some small colleges, such as Grinnell, have found that table service plays a very important part in the traditions of the college and in the campus life of the students. Because many of the small colleges do not have fraternities and sororities, the students live in dormitories and eat in large dining halls, and therefore, must make many of their student contacts during meal times. A meal with table service gives the students a more organized campus life. Another important factor in favor of table service is that colleges often encourage student enrollment by giving students an opportunity to work for part of their fees. Waiting on table is one such job. At Grinnell the student waiters punch a time clock and receive a check for their services each month. They also work at many of the social functions of the school, such as formal dinners. The college employs a permanent staff in the food department throughout the year, which includes a butcher, bakers, and

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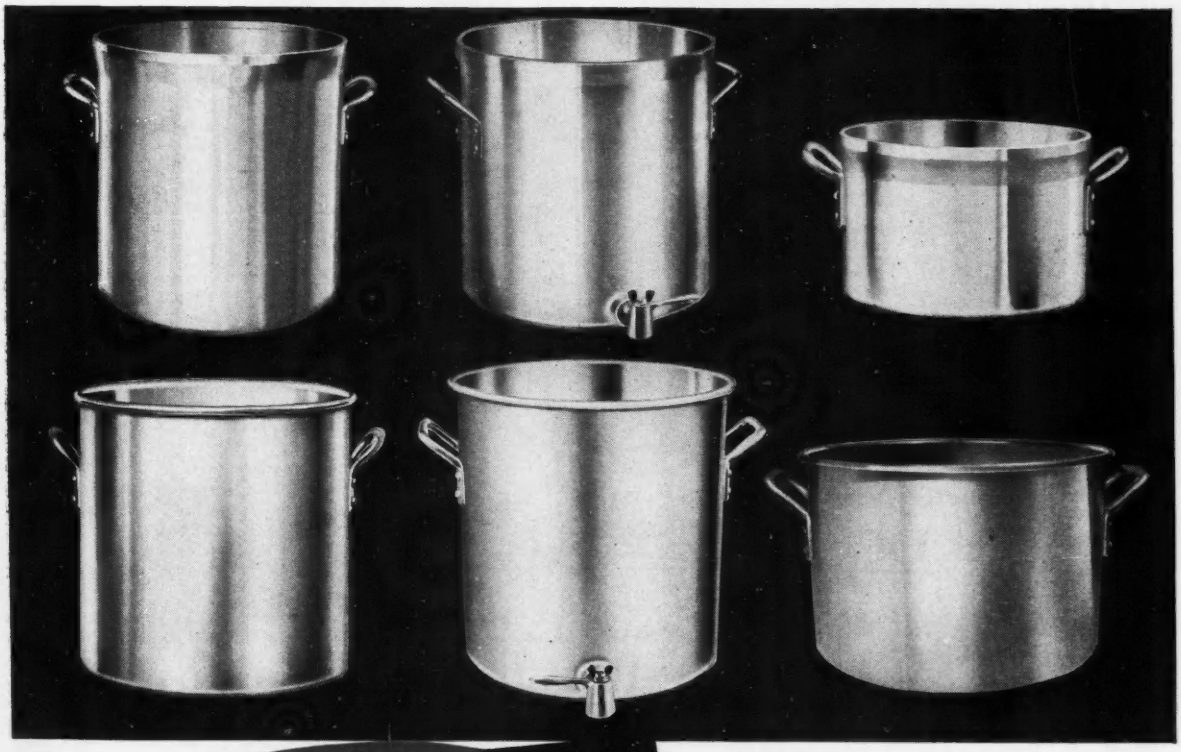

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FOUNTAIN, LUNCHEONETTE, DINER MAGAZINE

Vol. 1, July–August, 1954
* Nonfat dry milk solids.—p. 22.

Nonfat Dry Milk Solids. This report cites some uses and economies of nonfat dry milk solids which save time, money, and labor. The "quick-service" operator today is primarily interested in serving foods that have high appetite appeal at a low cost—a difficult task with current high prices of labor, food, space, and other operating costs. For this reason, the restaurateur is becoming increasingly aware of this versatile, economic, and nutritious dairy product which can be used in baked goods, meat products, cheese dishes, milk products, frozen dairy products, soup, pancakes, and dozens of other prepared foods. Since only the fat and water are removed from fresh sweet milk to make nonfat dry milk solids, the protein remains high. In fact, nonfat dry milk is one of the most economical sources of protein now available. Also, nonfat dry milk solids supply a concentrated source of calcium and lactose and are high in vitamins. An added advantage of powdered milk is that it does not require valuable refrigerator space. The article gives many examples of the uses of nonfat dry milk solids and how they can be used in various prepared foods.

THE HOTEL MONTHLY

Vol. 62, September, 1954
* How my purveyors work for me. H. Van Orman, Jr.—p. 49.

Hotel Dining Service. This article deals with a major problem of many hotels—dining service efficiency. Over half the gross income of the hotel cited originates in the food department; thus food purchases and labor costs are its largest continuing expenses. By using modern production methods, this hotel last year reduced operating costs without sacrificing quality of service. A thorough survey of the dining service's competition in the area aided in deciding the type of food service that should be maintained. As a result of the survey, the hotel now features steak or related items on the menu for both noon and dinner hours. Since this type of service involves rather an expensive inventory of high-priced raw items, it was necessary to set up a standard of quality and employ modern production methods. If profitable food service was to be achieved, standards for grade of meat and size of portion were needed. With the help of the meat purveyor, purchasing specifications for portion-ready meats which meet the hotel's requirements were worked out. Thus the problems of quality, portion, and price control were solved. Then methods of inventory control and ordering were established. By using the services of purveyors, the hotel's method of operation in the food department were made

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HOSPITAL MANAGEMENT

Vol. 78, August, 1954

* Suggested equipment for small hospital dietary departments. Part 1.—p. 78.

Equipment for a Small Hospital. This is Part 1 of a two-part feature which is a reprint of the recent booklet prepared by the Illinois Dietetic Association on planning and equipment for the dietary department in a small hospital. In this section, preliminary planning is discussed, including location, required area, work flow, storage space, food service, and equipment needed. Illustrations on how to use space to the best advantage are presented.

INSTITUTIONAL FEEDING AND HOUSING

Vol. 3, September, 1954

* Vinyl flooring: its advantages and limitations. J. Wright.—p. 16FH.
* How management keeps captive customers happy. M. Chartbrand.—p. 18FH.

Vinyl Flooring. The durability and attractiveness of vinyl plastic as heavy duty flooring are discussed in this article. Included is an outline which will be useful to those who already have vinyl plastic flooring or are contemplating the installation of this type of flooring. The four different types of vinyl flooring, how they are made, and the most advantageous use of them are discussed. Vinyl plastic flooring is immune to practically all ordinary chemical attacks, will not warp, crack, soften, or decay; it is more fire-resistant and possesses greater dimensional stability and resistance to indentation wear than other types of flooring. It also affords brighter and more distinctive colors than similar floors in asphalt or rubber. The installation and maintenance of this type of flooring are also discussed.

In-Plant Feeding. In-plant feeding at a New England company is a massive operation which originated as a good-will practice almost sixty years ago. Today a maximum of thought and planning is spent to make certain that the cafeteria operates as efficiently as the other departments of the company. The basic success of the cafeteria is due to the belief that it must operate on the principle that the customer is entitled to a product that gives the utmost in satisfaction at the lowest possible cost. The serving of well balanced, low-cost meals is made possible by the participation of management in the expense. To make ends meet, the department not only has subsidized operation, but also uses scientific budgeting. The article gives complete details of the layout of the cafeteria, the food budget, daily menus, and personnel organization.

INSTITUTIONS MAGAZINE

Vol. 35, September, 1954

* Fish sticks 'n chips.—p. 8.
* Specialized food service functions.—p. 38.
* Master cake mix aids control of quality, cost. E. Habig and P. Pope.—p. 48.
* Closer watch on sanitation in food handling needed. W. H. Haskell.—p. 51.
* Institute publishes rules for preferred asphalt tile care.—p. 100.
* Get organized to conserve costly management time. W. J. Kuehn.—p. 127.
* Short cut to spaghetti preparation utilizes dehydrated sauce mix.—p. 142.
* Simplify job, aid morale. J. W. Stokes.—p. 170.
* Selecting sanitizing equipment to make glassware gleam. J. R. Myers.—p. 182.
* Follow tested freezing tips for success from soup to pie. A. M. Macfarlane.—p. 183.

Fish Sticks 'n Chips. Good eating, provided by fish sticks and chips, is a favorite menu of New England school children. This menu not only meets the protein requirements of school lunches, but also, because of the mass production of precooked, frozen fish sticks, cuts costs and assures high quality. Careful scientific and sanitary methods of preparation have produced, in precooked fish sticks, a product as fine as those used in the best-managed quantity kitchens. Fish sticks are composed of an assortment of species, among them cod, haddock, perch, pollock, whiting, and flounder. The article gives a complete description of how the fish sticks are processed and frozen and also outlines in detail instructions on warming, serving, and varying the finished product. The serving and preparation of this menu are illustrated with photographs.

Planning and Staffing Responsibilities. This article covers the functions of the hospital dietitian and de-

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Evidence indicates that long continued extremely low fat intake in adults is incompatible with good health.[4,a] In addition to protecting tissue protein against catabolism for energy needs (the protein-sparing action of fat), sufficient amounts of fat in the dietary promote storage of protein.[4,b] In a normal mixed diet, fat is about 95 per cent as efficient as carbohydrate for production of muscular work.[4,c]

Neither the optimal level of fat in the diet nor the optimal range for apportionment of fat and carbohydrate to meet calorie allowances is known.[1,2]

Contrary to general impressions, fat in the mixed diet is effectively digested.[4,d] In moderate amounts it does not appreciably influence the digestibility of other foods.[5] Fat enhances the satiety value of meals, and foods naturally containing fat and those prepared with fat add much to the flavor value of meals. High fat diets sometimes are useful in alleviating constipation.[6]

Meat, according to its kind and cut, provides variable amounts of fat which contribute importantly to the body's need for fat. The fat of meat is almost completely digested. Meat also supplies valuable amounts of high biologic quality protein, B vitamins, and essential minerals. Skeletal muscle meat contains less than 0.1 per cent of cholesterol.[7]

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scribes the operation of the dietary department. Since this department spends from one-fourth to one-third of the entire hospital budget, it is important that the administrative dietitian has sound business and management ability as well as technical competence. How to make improvements in the dietary department and how to develop an efficient physical plant are two of the most important responsibilities of managing the department. To make improvements, the dietitian must move slowly, plan carefully, and consult those to whom she is responsible. In planning the efficient physical plant, she must keep in mind that labor-saving equipment and operating procedures have become more and more money-saving, and the planning for an economical physical plant requires expert consultation and planning from the "bottom up." After planning the layout and equipment, it is necessary to decide on personnel needs which are determined by such factors as menu, equipment, type of service, number of people fed, and services offered. It is important to have suitable employees and to manage them well. The dietitian must have leadership qualities, for she is responsible for placing employees wisely, training them, helping them to adjust to the job, and encouraging them to acquire information and skills that will help them to move up in the organization. This article gives references that will guide the dietitian in planning the department and training the personnel.

Cake Mix in Quantity. The steady increase in the use of mixes in institutions emphasizes the importance of controlling quality and costs of baked products and utilizing labor economically. The experimental foods laboratory and the institutional management kitchen at Purdue University have developed and tested a "master cake mix in quantity." This article contains the recipe for this mix, with detailed instructions on preparation, and explains nine possible variations which offer good possibilities for menu change. Large quantities of the mix can be prepared during slack times and stored without refrigeration for several weeks.

Food-Borne Diseases in the School Lunch. The causes of food-borne diseases are: (a) inadequate refrigeration, (b) disease carriers, (c) infected sores, (d) general insanitation, (e) cases of disease, and (f) chemicals in food. Many of the outbreaks of staphylococcal food poisoning occur in public and private schools. In a survey of such cases, it was found that inadequate refrigeration was the largest cause of the poisoning, implying that there is a lack of understanding of the importance of refrigeration. When food is maintained by refrigeration at as near 40°F. as possible, multiplication of bacteria is largely prevented. It is also important that hot food be kept at constant temperature and that utensils used in food preparation be sanitized. Over 18 per cent of the reported outbreaks in school feeding facilities last year were due to contamination of food by disease-carrying employees. In most instances, the diseases involved were typhoid fever, Shigella, Salmonella, and ameba. Employees who are carriers of such diseases as meningitis, diphtheria, and streptococcic throat infections are also threats since they may contaminate utensils. For an employee to handle food or utensils with an infected place anywhere on the body is asking for trouble. Although it is difficult to believe that general bad sanitation can be found in institutions today, it was the cause of over 12½ per cent of the food-borne diseases reported. Carelessness in storing poisons near the food preparation and store room areas has also been known to cause outbreaks of illness. Food service training should be given to all personnel of school feeding facilities, and strict supervision should be exercised over all employees to see that instructions are followed.

Care of Asphalt Tile Foors. This article contains information on the maintenance of asphalt tile floors and includes detailed instructions for sweeping, washing, and waxing such floors. The equipment and materials needed for cleaning and polishing floors are also discussed. In the instructions for sweeping, the number of times the floor should be swept, the type of brush and the type of sweeping compound to use are included.

Institutional Organization. This article gives six steps necessary in developing and installing an effective organization plan. Operations in institutions involving as few as two key

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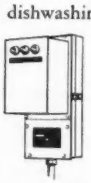

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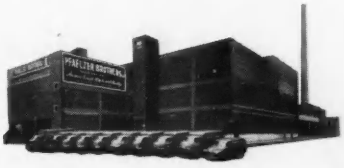

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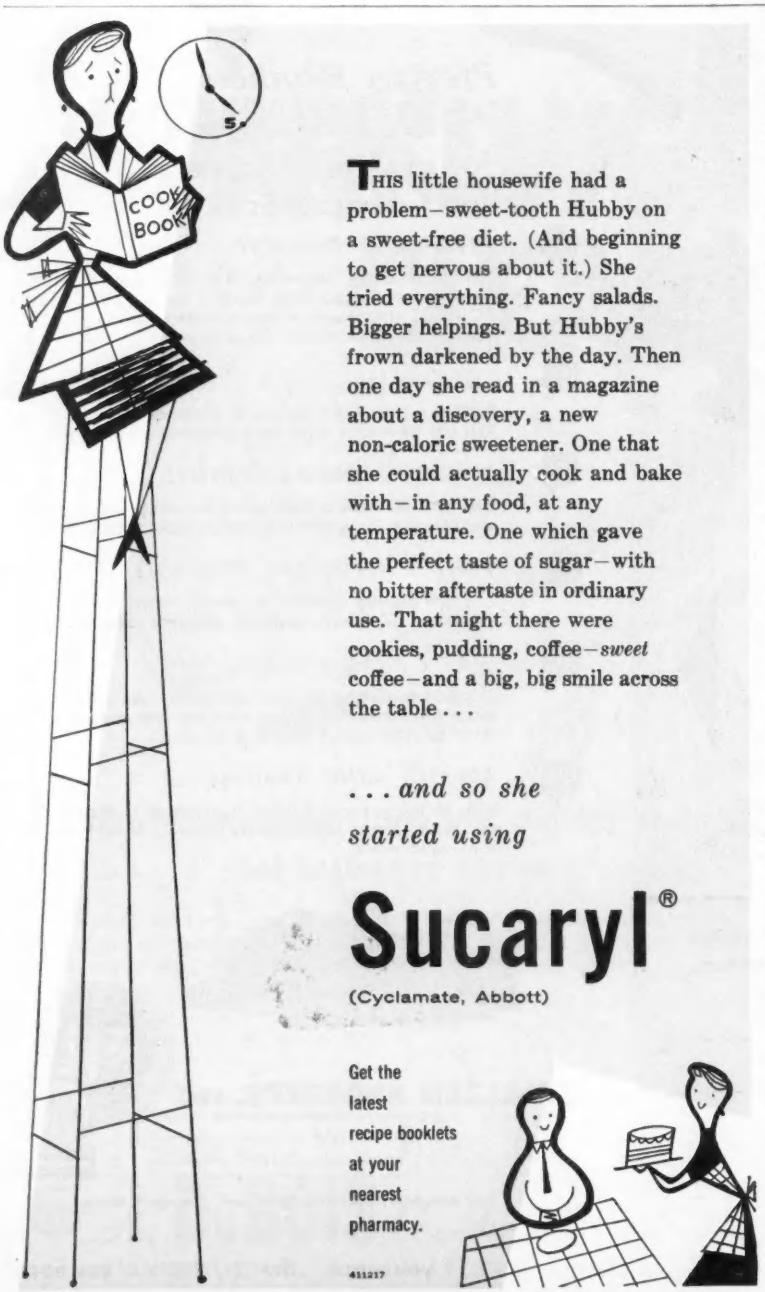
people, as readily as those involving hundreds, can get tangled up with duplicated purchases, conflicting instructions, and many other too-common errors due to lack of organization. These difficulties are due to the lack of definitely outlined plans, and unless responsibilities are specifically assigned and authority is clearly defined, an institution will waste hundreds of working hours every year. Although organizing is a time-consuming job, even for experts, over a period of time a person can do it on his own. Each step taken toward reducing confusion, duplication, and indecision will constitute valuable progress. Good organization is very helpful to a managing executive in that he can fulfill his prime functions of planning, advising, checking, recommending, and managing people as opposed to the performance of detailed tasks. Although size of an institution is a valid consideration in determining the physical form in which to place elements of your organization program, limited size of an organization does not nullify this need.

Dehydrated Spaghetti Sauce Mix. Spaghetti is always welcome on an institutional menu, for it lends itself well to portion control and quantity preparation, is cost-favorable, and is generally popular. A California school has added the advantage of simplified preparation to low cost by using a flavorful dehydrated spaghetti sauce mix. The mix contains all the vegetables except tomatoes which are used in preparing spaghetti, together with a blend of other foods which includes mushrooms, spices, and herbs. The quality of the mix is consistent and duplication dependable; thus it is easy to fill extra requests. The spaghetti is easy to prepare, and variations of the menu are simple. The sauce can also be used on meat loaf, meat balls, hamburger steaks, Swiss steaks, frankfurters, fish, and zucchini. The school's recipe for spaghetti casserole, using the mix, is presented.

Simplify Job, Aid Morale. The executives of many institutions and businesses often search for ways to improve employee enthusiasm and job efficiency. The personnel director and the assistant director of Newton-Wellesley Hospital, Newton Lower Falls, Massachusetts, in solving this problem adapted the principles of work simplification used by industry to the hospital's program. The program enlisted the interest and participation of everyone from administrator to the youngest student nurse or orderly. The hospital devised a training manual and held classes regularly for various groups—department heads, supervisors, and workers in the different departments. During the first eighteen months of the program, nearly two hundred employees attended these courses, which were of a practical nature and based on the theory that one "learns by doing." Employees below the supervisory level made suggestions for improvements in efficiency and received prizes for the best suggestions which were adopted on a trial basis. The following principles guided Newton-Wellesley Hospital's program: (a) place definite responsibility for the program—make one person responsible; (b) work out a plan—schedule the course and assign leaders and instructors; (c) start at the top and work down—the program will not work unless management is indoctrinated from departmental and supervisory levels downward; (d) set up a suggestion system and see that it is carried out—work out a definite system of awards and assign responsibilities for evaluating suggestions; (e) take every opportunity to publicize results within the institution and community—present results to directors and others interested; and (f) institute a program of refresher courses for those who have had basic training.

Gleaming Glassware. The human eye more readily sees a lipstick smear, a water spot, or foreign matter on a glass than on another type of utensil. For this reason, the operator must be very particular in having perfectly clean and sanitized glassware. Fortunately for the food service industry, many manufacturers in considering this problem and its importance to the operator, have developed different types of efficient glasswashers which are now available. This article shows several illustrations of different glasswashing units, plus helpful suggestions for the operator's particular needs on how to choose a glasswasher.

Freezing Tips. This article is one in a series on freezing prepared and precooked foods. It gives some helpful tips


COOK BOOK
THIS little housewife had a problem—sweet-tooth Hubby on a sweet-free diet. (And beginning to get nervous about it.) She tried everything. Fancy salads. Bigger helpings. But Hubby's frown darkened by the day. Then one day she read in a magazine about a discovery, a new non-caloric sweetener. One that she could actually cook and bake with—in any food, at any temperature. One which gave the perfect taste of sugar—with no bitter aftertaste in ordinary use. That night there were cookies, pudding, coffee—*sweet* coffee—and a big, big smile across the table . . .
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enriched bread in *Obesity Management*

DIET organization in anti-obesity management must be based on the nutrient and energy values of the foods allowed, on the eating satisfaction they provide, and on their cost. Enriched bread merits a prominent place in reducing diets. While it supplies notable quantities of essential nutrients, it yields only moderate amounts of nutrient energy. At the same time, bread is universally appealing to the palate, and its cost remains low.

The daily allowance of enriched bread in the reducing diet may vary from one to six slices. One regular slice of enriched bread provides only 63 calories, but supplies these notable amounts of essential nutrients (based on estimated national average): 2.2 Gm. of protein, 0.06 mg. of thiamine, 0.6 mg. of niacin, 0.04 mg. of riboflavin, 0.7 mg. of iron, 23 mg. of calcium, and 21 mg. of phosphorus. Its protein, a composite of flour and milk proteins, is applicable to growth as well as tissue maintenance.

Universally liked, enriched bread enhances the eating satisfaction provided by the reducing diet. It blends well with all menus, lessening the hardship of dieting.

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to operators who want to establish takeout food service and to those who want to use quantity planning. The article includes suggestions on freezing rolls and bread, cakes, cookies, cake frosting and fillings, pies, and puddings, and tells what type of foods should not be frozen. Also included are instructions on how to store food in a freezer and how bakery goods should be prepared for storing.

THE MODERN HOSPITAL

Vol. 83, September, 1954

* The goal is a model dietary department. J. F. Wight and S. R. Mitchell.—p. 108.

Model Dietary Department. The dietary department of the modern hospital has progressed through the years from a small, insignificant auxiliary department to a large and complex organization under the direction of a responsible and experienced dietitian. The dietitian's job of operating a satisfactory food service, includes responsibility for personnel management, departmental efficiency, public relations, economical planning, complex organization, and numerous other facets. A capable dietitian, in order to carry out her job efficiently, needs efficient and up-to-date equipment and well planned kitchen and eating facilities. This article tells of Herrick Memorial Hospital in Berkeley, California, where the dietary department was recently reorganized with a new kitchen replacing the hospital's old and obsolete one. The article discusses the changes and improvements in the hospital's (a) hospital standards, (b) employment policies, (c) meal costs, (d) economic savings, and (e) the modern hospital's most difficult problem—that of evaluating personnel and the problems that arise in this evaluation. A floor plan of the hospital's new kitchen is included.

WHAT'S NEW IN HOME ECONOMICS

Vol. 18, September, 1954

* The need for flexibility in recommendations for good nutrition. P. E. Howe.—p. 72.
* The home economist's responsibility in preparing recipes correctly. D. E. Shank.—p. 76.

The homemaker's responsibility in following recipes carefully. M. C. Husted.—p. 80.

Flexibility in Good Nutrition. Recommended dietary allowances should be intentionally planned to be liberal and to cover individual variations within the majority of the population. Dependence on any particular food or type of food is often misleading, for good nutritional requirements can be found in many different types of food. This is especially true where the dietary is composed largely of natural, unprocessed, or only slightly processed foods. Another factor which is important in making recommendations for good nutrition is that the size of portions of foods, which can vary greatly, affect the nutritional value. Often a large portion of one type of food eliminates the need for another. This article recommends flexibility in nutritional recommendations and discusses the reasons for the recommendation.

What Makes a Recipe Successful? Careful planning, extensive research, and reliable ingredients are all important to the success of a recipe. One can expect from a recipe enjoyment, good eating, and good results. Thus the homemaker must rely on the industries that make the ingredients for her recipes, the colleges and universities that experiment with the ingredients, and the author who writes the recipe. In our grandmothers' time, recipes were more or less a matter of chance. They were not clearly defined, and it was unlikely that a recipe could be exactly duplicated. Today we should be able to rely on the products we use, for the home economists of companies that make the products must be sure that the product will combine well in any recipe with ingredients from other manufacturers. The author who writes the recipe also plays an important part in its success or failure, for if a recipe is not written clearly and concisely, it will not be followed easily or made correctly. Because much of today's family life is centered around daily meals, the success or failure of a recipe is very important to the homemaker. This article contains sections on fundamental recipe knowledge, tested methods and techniques, special helps to success, and a glossary of terms commonly used in recipes.

Food Acceptance Training for Military Men

Training in food acceptance is as necessary as training in the attitude toward all other phases of war, and a habit established in youth will remain throughout life. In any case, tolerance of food monotony can be acquired by most men if they will undergo disciplined training. But indoctrination in the acceptance of food must be maintained over a comparatively long period if it is successful.

If you put a *young* man on a very restricted diet for a period of three weeks, let him off for a week of delving into what he might consider the height of food luxury, then put him back on the restricted diet for another three weeks, then another interval of freedom of choice, he will return to the diet he at first thought to be monotonous and be satisfied with it at any time circumstances indicate that such limited provision of food is necessary.

Nutritionists today know much about the requirements of men under each given circumstance, and the Army could provide simple but adequate nutrition packaged in a manner which would largely solve its logistic problems. Such a package might not be ideal for every circumstance, but it would serve for a temporary condition such as intermittent combat activity.

A great deal of adverse psychological attitude toward Army foods could be overcome if the government would produce an adequate, but simple combat ration compounded and packaged so that it could be sold to the public and introduced as an ordinary commodity in the home. In that manner, the boys could be already indoctrinated in respect to combat rations before they entered the Service.

To provide such a ration for Boy Scouts on their outings would be of some value, but would not be as profitable as the introduction of the item into the home. If used mainly for outings, it would be looked upon as a special "picnic" item, but if it became a well-liked food in the home, men using it in the front line likely would not complain.

Untrained men differ so much in their attitude toward food that it is almost impossible, by the same general arrangement, to suit their tastes. They must be indoctrinated, not only in regard to the food they will receive, but in regard to proper behavior in the physical and psychological environment they will experience. It seems to me that training in the acceptance of a few adequate foods would be less expensive and more conducive to front line efficiency than pampering men with a great variety of foods. In combat, men must face many unaccustomed conditions, many of which are much more of an affront to their taste, smell, sight, and feel than would be a simple ration adequate in provision for the physiologic requirements.—*Excerpted from "Food Problems in Exploring the Arctic" by Sir Hubert Wilkins in* Nutrition Under Climatic Stress, *published by the National Academy of Sciences—National Research Council, 1954.*

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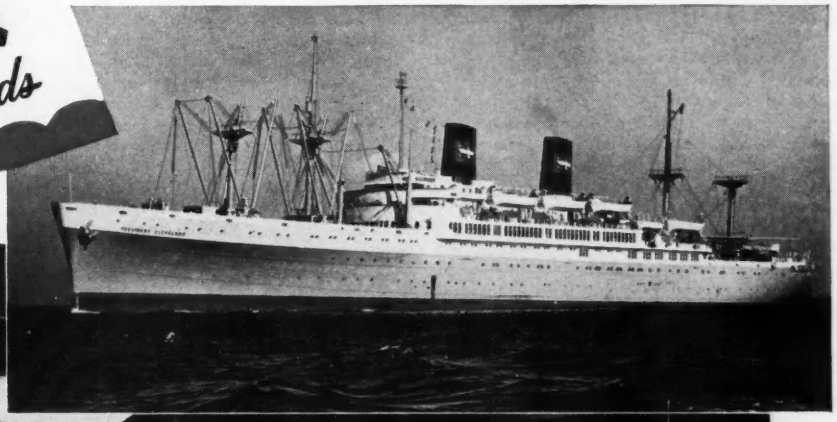

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News Notes

Curriculum Guide for Internships. Just in time for presentation at the Annual Conference of Directors of Approved Dietetic Internships, The American Dietetic Association released the fruits of its most recent work directed toward enriching the internship experiences of the dietitian. Heart of the project is the compilation of *Generalizations for the Curriculum Guide for the Dietetic Intern*. Its accompaniment is titled *Sample Teaching Units*.

The *Curriculum Guide* features the use of generalizations, a method of curriculum planning currently advocated by educators, which reflect facts from past experience classified and organized to show relationships among them. Later, by application to new situations, these generalizations should serve as the basis for solving problems. The generalizations are not taught as such, but are planned to serve as a guide for the teacher in selecting facts to be presented and for the student in developing her own generalizations. Thus the *Curriculum Guide* provides a flexible tool, allowing each internship to maintain its individuality and meet the specific training needs of its own situation. The *Curriculum Guide* is divided into four broad areas: "Professional Relationships and Adjustments," "Administration," "Nutrition," and "Nutrition Education for the Student Nurse."

The accompanying *Teaching Units* have been designed to show the application of the generalizations in the *Curriculum Guide* to specific teaching problems. Seven sample teaching units are presented for internship directors' use in working out their own plans.

These two publications are the culmination of work begun as far back as 1948 at the Annual Conference of Directors of Approved Internships. In that year, the first of a series of three annual workshops on curriculum development was held. As the work advanced each year—under the guidance of Dr. Hilda Taba, Department of Education, University of Chicago, who served as consultant—a number of "sets and objectives" and "teaching units" were submitted by internship directors from all over the country. Then, in the summer of 1951, three of the dietitians working on this project—Alberta Hughes, Beatrice Finkelstein, and Jeanne Weise—attended a workshop emphasizing curriculum study at Iowa State College. There they considered the accumulated material and revised the teaching units so as to retain and place increased emphasis on the principles and concepts to be developed in the curriculum. Copies of these revised materials were sent to the directors of approved internships who reported that they preferred this type of organization to anything done previously.

At the suggestion of these directors, The Executive Board of the Association made available a fellowship at Iowa State College so that the accumulated materials could be revised to conform to the sample units worked out at the Iowa workshop. The fellowship was awarded to Marjorie White, who began working on the project in September 1952. The *Curriculum Guide* and *Teaching Units* are the results which have evolved from her work, as evaluated by the internship directors and subsequently revised according to their recommendations. Thus the two units of this curriculum "package" were unique in their democratic development.

A more detailed and comprehensive discussion of the development and function of the *Curriculum Guide* will appear in an early issue of the JOURNAL.

The contribution of this *Curriculum Guide* can be better appreciated when it is realized that the generalizations are fully as applicable to college and university teaching and curriculum as to the practical experience demands of the internship. College and university faculty in foods and nutrition and institution management will find this Association-developed project of great value.

The *Curriculum Guide* is priced at $1.50 a copy, while the *Teaching Units* will sell for 50 cents. Orders may be sent directly to the A.D.A. headquarters office.

Nutrition Committee, American Heart Association. The first meeting of the Nutrition Committee of the Council on Community Service and Education, American Heart Association, was held in New York on September 10. The committee will act as an advisory and consultative group in the development of research, community service and educational activities, and programs of the American Heart Association in the field of nutrition. Membership of the committee is made up of: Dr. Herbert Pollack, Chairman; Dr. LeRoy Voris, Executive Secretary, Food and Nutrition Board; Dr. James Wilson, Secretary, Council on Foods and Nutrition, American Medical Association; Dr. Fredrick J. Stare, Head, Department of Nutrition, Harvard School of Public Health; R. R. Williams, Williams-Waterman Fund; Dr. W. H. Sebrell, National Institutes of Health, Bethesda, Maryland; Dr. Charles Davidson, Thorndike Memorial Library; Dr. Wendell H. Griffith, University of California at Los Angeles; Pauline Murrah, National Dairy Council, New York City; and Dr. John Ferree, American Heart Association, ex-officio.

Dr. Doris Johnson, Grace-New Haven Community Hospital, attended as an unofficial representative for The American Dietetic Association.

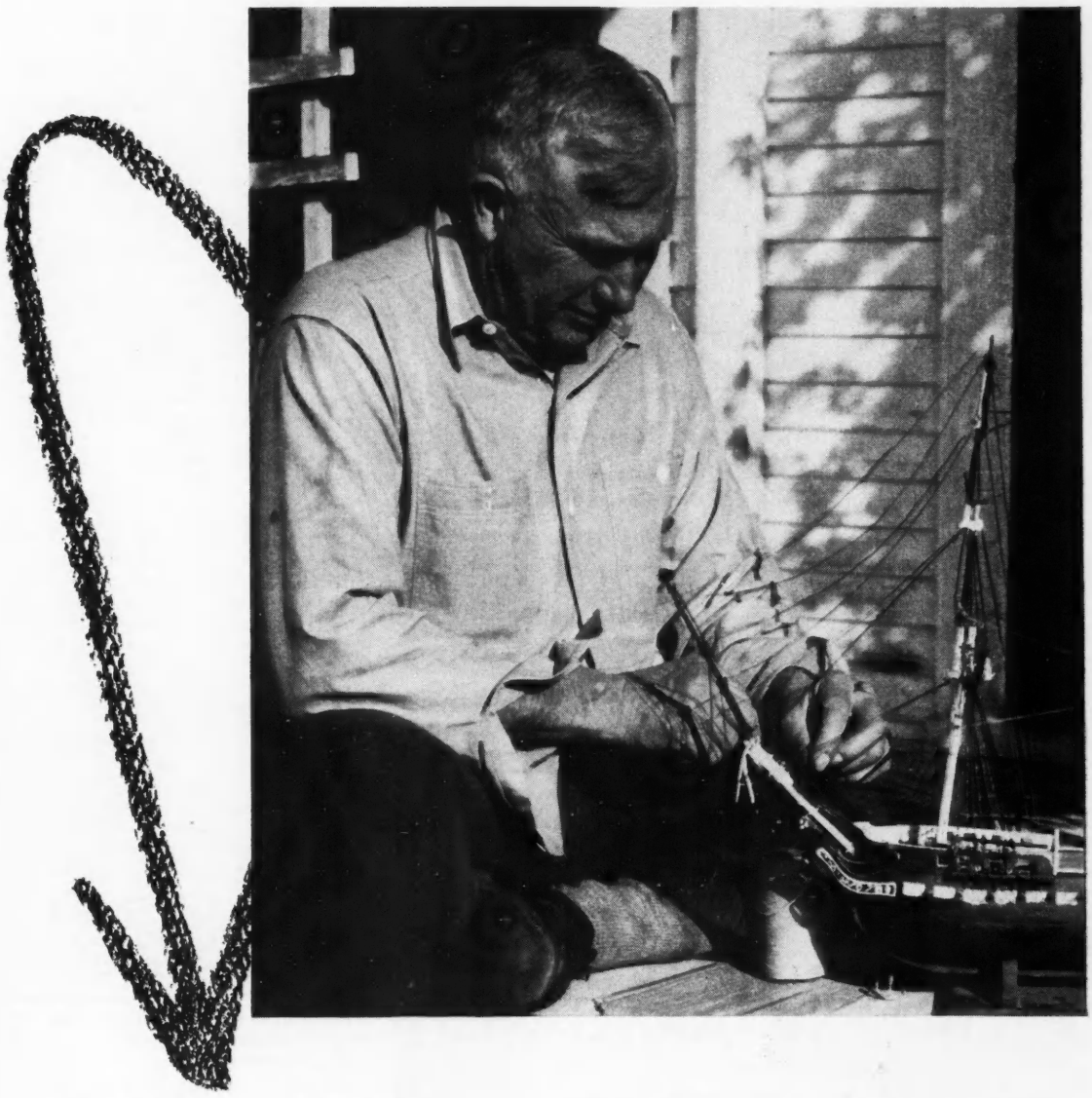
Col. Wickliffe Retires. The Women's Medical Specialist Corps of the Army has announced the resignation of Col. Nell Wickliffe, effective on October 31, after three years' service as Chief of the WMSC. Col. Wickliffe, a graduate of Winthrop College for Women, Rocky Hill, South Carolina, and the Army dietetic internship at Walter Reed Army Hospital, served for sixteen years as Staff Dietitian and later Chief Dietitian and Director of the dietetic internship at Brooke Army Hospital, Ft. Sam Houston, Texas. She has also had assignments to Walter Reed Army Hospital as Chief Dietitian, and to the Japan Logistical Command as Chief Dietitian and Dietetic Consultant to the Far East Command prior to her appointment as Chief of the WMSC. For her service in Japan during the Korean conflict, she received the Legion of Merit which cited in part her effective reorganization of food service operations in hospitals throughout the command, despite personnel shortages and influx of battle casualties. Col. Wickliffe also holds the Army Commendation Ribbon, Victory Medal for World War II, and Korean Service Medal.

Interns Graduate. On September 10, interns from two Army dietetic internships completed their year's work. At *Brooke Army Medical Center*, Ft. Sam Houston, Texas, exercises were held for ten interns, who have now assumed duties as staff dietitians at other hospitals. Diplomas were presented by Col. Roland Charles, Deputy Commander, to the following Second Lieutenants: Carol J. Adams, Mildred A. Duomi, Anita I. Hutchison, May Lou Pate, Shirley Peterson, Dorothy Regan, Marilyn Schmechel, Ruth Siegfried, Elaine Sterling, and Betty L. Vannoy.

At *Walter Reed Medical Center*, Washington, eleven Second Lieutenants received diplomas presented by Col. Joseph R. Vivas, Executive Officer. The graduates are: Eileen L. Billick, Helen M. Collins, Betty A. Estrada, Margaret A. Fairbrother, Phyllis M. Horning, Mary P. McGrew, Joanne M. McNally, Mary L. Mudra, Sarah A. Pankonin, Helen J. Vawter, and Irma Weltman.

Seven interns at *Shadyside Hospital*, Pittsburgh, also completed their work in September and received certificates and A.D.A. pins. The graduates are: Nancy Lou Robinson, Carnegie Institute of Technology; Mildred Baumbeck, Mt. Mercy College; Ramona Riley, Madison College; Joanne Matush, Pennsylvania State University; Marcia Lee Parker, Wesleyan College; Dorothy Ann Cooley, Maryville College; and Lilian Y. Tsushima, University of Hawaii.

Diet Manuals in A.D.A. Library. During 1954, a number of new diet manuals have been contributed to the A.D.A. Library and are now available for loan to members. Manuals from the following hospitals are included in this new collection:



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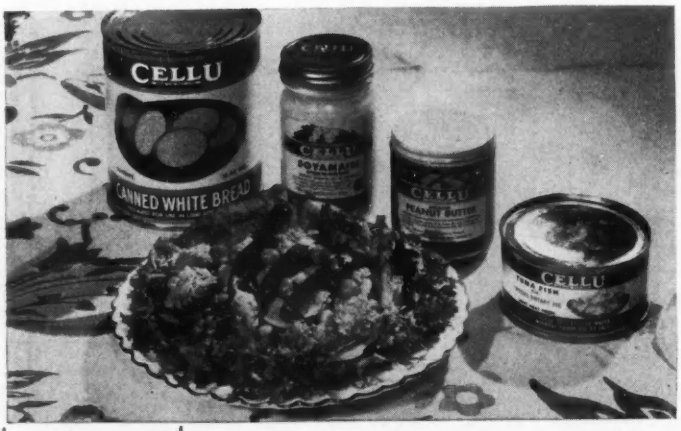

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St. Benedict's Hospital, Ogden, Utah
St. Luke's Hospital, Cleveland
Santa Barbara Cottage Hospital, Santa Barbara, California
White Cross Hospital, Columbus, Ohio

Other helps for small hospitals include a diet manual prepared by the nutrition consultant of the State of Georgia and a *Dietary Handbook* by the Montana Dietetic Association and the Montana Agricultural Experiment Station. The latter includes information on menu planning, use of leftovers, control of food costs, and buying suggestions, as well as information on therapeutic diets comparable to that usually included in diet manuals.

Another addition to the A.D.A. Library which is now available for loan is "Emergency and Disaster Mass Feeding Manual" prepared by the Ohio Civil Defense Corps, with which the Ohio Nutrition Committee cooperated.

For dietitians concerned with metabolic research, a discussion of dietary procedures and techniques by Leila F. Presson, formerly of Massachusetts General Hospital, has been added to the library loan collection. In it the problems and methods of purchasing to maintain constant quality and cooking and food preparation procedures used in metabolic studies at Massachusetts General are described in detail, as well as a list of special equipment installed in the metabolic kitchen.

Plentiful Foods MONTHLY LIST

Features in the government's list of plentiful foods for November will be: turkeys, eggs, and beef. The entire list will include:

Protein foods

Beef	Eggs
Chickens—broilers and fryers	Fish, frozen
Dairy products	Pork
	Shrimp
	Turkeys

Fruits and vegetables

Beans, dry
Dates
Prunes
Rice

Other foods

Almonds	Vegetable shortening
Filberts	Walnuts
Salad oils	

Cheese Standards Amended. The Food and Drug Administration has proposed amendments to the standards for cheeses and cheese products so that sorbic acid may be permitted as an optional ingredient in an amount not to exceed 0.2 per cent of the food by weight. When sorbic acid is present, the label shall include a statement, "Sorbic acid added to retard spoilage" or "Sorbic

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acid added as a preservative." The value of sorbic acid in preventing rancidity in cheese was discussed in the September issue of the JOURNAL (see page 845).

Study of Milk Regulations. Many persons have expressed the belief that efforts to increase milk consumption are being handicapped by restrictive laws, regulations, and ordinances. To learn if this is true, the Agricultural Marketing Service of the U.S.D.A. is planning a fact-finding study of federal, state, and municipal regulations dealing with the marketing of milk. The study will deal principally with sanitary and economic regulations, including measures having to do with milk quality and pricing regulations, which includes those that establish milk marketing areas and boundaries. The work is designed to yield an objective description and analysis of these measures and the extent to which they act as barriers to the movement, merchandising, pricing, and consumption of milk.

Cottage Cheese Consumption. Last year about 300 million gal. milk went into the making of cottage cheese, according to the U.S.D.A. Consumption has been rising during recent years. In 1953, 407 million lb. were used, as compared to 256 million lb. in 1946.

Reorganization of NCNGO. Reorganization of the group formerly known as the National Conference of Nongovernment Organizations on FAO has been effected, with a change in name to "National Conference on FAO." Under the new plan, participation in this National Conference will be limited to representatives of organizations that: (a) are national in scope; (b) have a direct concern for realizing the objectives of FAO; and (c) indicate their intention to participate regularly in the activities of the Conference. The National Conference will not be a policy-making body and will not attempt to make recommendations concerning FAO and its work. Instead, its functions will be to inform members and the public of the work of FAO through various types of meetings and activities.

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ASFSA Convention. The 8th Annual Convention of the American School Food Service Association will convene in Miami Beach, Florida, from November 15 through 20. The professional program will be presented on the last four days of the meeting and will include papers concerning current developments in packaging fruits and vegetables, purchasing meats, audio-visual materials, layouts, application of research findings to the school lunch, wetting agents and detergents, time and motion economy, and civil defense.

Symposium on Nutrition and Blood Formation. On October 22, the National Vitamin Foundation sponsored at the University of Cincinnati a symposium on the "Nutritional Aspects of Blood Formation." The program included the following papers:

"Iron Metabolism in Relation to Microcytic Hypochromic Anemia" by Carl V. Moore, M.D., Washington University School of Medicine, St. Louis

"The Relationship of Copper, Cobalt, and Trace Elements to Hematopoiesis" — George E. Cartwright, M.D., University of Utah School of Medicine, Salt Lake City

"Some Metabolic Interrelationships of Folic Acid, Vitamin B_{12}, and Ascorbic Acid"—J. N. Williams, Ph.D., University of Wisconsin, Madison

"Interrelationship of Folic Acid, Vitamin B_{12}, and Ascorbic Acid in Patients with Megaloblastic Anemia"—John F. Mueller, M.D., and John J. Will, M.D., University of Cincinnati College of Medicine

"Absorption and Utilization of Vitamin B_{12}"—Robert F. Schilling, M.D., University of Wisconsin School of Medicine

"Relationships of Hormones to the Utilization of Essential Nutrients in Erythropoiesis"—Roger C. Crafts, Ph.D., University of Cincinati College of Medicine

"Antimetabolites and Antibiotics as Tools for Research on Blood Formation"—Thomas H. Jukes, Ph.D., Lederle Laboratories, Pearl River, New York

"Stercobilin and Hematopoiesis"—B. Watson James, III, M.D., Medical College of Virginia, Richmond

"Essential Nutrients in the Management of Hematopoietic Disorders of Human

▶ Yes, that's the surprisingly low cost of this 6-oz. bowl when you buy Heinz Condensed Tomato Soup in the Chef-Size can (51-ozs.). And, you save on preparation cost and cut leftover losses to a minimum. Tomato is but one of 14 favorite Heinz Soups available in chef-size containers. Each offers a similar money-saving opportunity. See your Heinz Man and start saving on your food bills.

HEINZ 57 CONDENSED CHEF-SIZE SOUPS

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Beings—A Resume"—Richard W. Vilter, M.D.

Stanford to Do Research in Hawaii. A new field office of the Stanford Research Institute is being opened in Honolulu after a formal invitation to the Institute was endorsed by the Territorial Legislature and concurred in by the Hawaiian Chamber of Commerce. The basic resident staff will consist of an economist, a senior scientist in chemistry, a research assistant, and a secretary. An initial interest of the new office will be to assemble information about Hawaii to be incorporated in the *Western Resources Handbook*, a public service activity of the Institute.

Stanford Research Institute is a nonprofit organization whose business is applied research for industry and government. Founded in 1946 to promote the economic progress of the West, it now has a staff of 840 with offices in Los Angeles, Phoenix, Portland, Oregon, and Washington, D. C., with additional laboratories in Pasadena and Hollywood.

Gerontology. In March a "Symposium on Problems of Gerontology" was held under the auspices of The Johns Hopkins University School of Hygiene and Public Health and The National Vitamin Foundation, Inc. The proceedings of this symposium are now available and include the following papers:

"Fat Metabolism—With Special Reference to Problems of Aging"—H. J. Deuel, Jr., University of Southern California, Los Angeles

"Protein Metabolism with Particular Reference to Problems of Aging"—C. S. Davidson, Harvard Medical School, Boston

"Vitamin B_{12} and Aging"—B. F. Chow, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore

"Blood and Urine Vitamin Levels in the Aged"—J. E. Kirk, School of Medicine, Washington University, St. Louis

"Hemopoietic Factors with Reference to Aging"—F. H. Bethell, The Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan, Ann Arbor

"The Hormones and Metabolism"—C. N. H. Long, School of Medicine, Yale University, New Haven, Connecticut

"Endocrine Stress and Aging"—D. J. Ingle, The Ben May Laboratory for Cancer Research, University of Chicago

"Some Nutritional Problems of the Aged"—H. A. Rafsky, Geriatric Institute, Home and Hospital of the Daughters of Jacob, Bronx, New York

The proceedings, published as No. 9 of the Nutrition Symposium Series, is available for $2.50 a copy from The National Vitamin Foundation, Inc., 15 East 58th Street, New York 22.

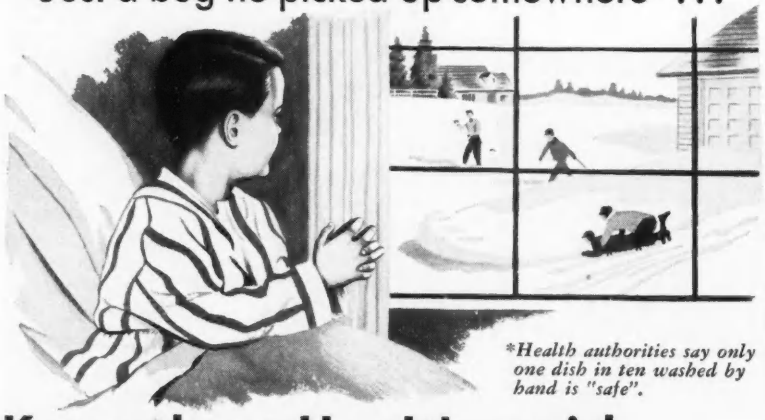
TV Program on Hypertension. On September 23, a symposium on the management of hypertension was televised on a closed circuit to twenty-three cities coast-to-coast. More than 5000 Fellows of the American College of Physicians and their colleagues gathered in hotels and studios for this televised session in postgraduate medical education. It was the first time that a national society had chosen television to address its entire membership at a single time around the country, as well as the first time that a closed-circuit telecast had been made coast-to-coast for educational and scientific purposes. Five medical authorities described the latest advances in the treatment of high blood pressure.

Included in the panel of experts was Dr. Garfield G. Duncan, Director, Medical Division, Pennsylvania Hospital, Philadelphia. He stressed strongly the need for a tailor-made regimen for each patient with hypertension, indicating that anyone with the slightest degree of high blood pressure should (a) take off excess poundage; (b) take things easy physically, mentally, and emotionally; (c) get adequate rest, and (d) avoid excessive use of salt.

The symposium was co-sponsored by the American College of Physicians and Wyeth Laboratories.

Canned Meat. "Quality and Stability of Canned Meats" was the topic of a symposium held last spring by the Quartermaster Food and Container Institute to obtain information of value in improving the quality of canned meats procured for the Armed Forces. The proceedings of this symposium have now

"Just a bug he picked up somewhere* . . ."



*Health authorities say only one dish in ten washed by hand is "safe".

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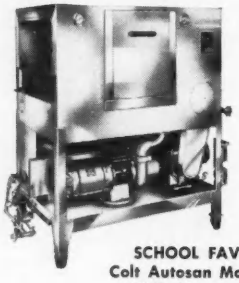

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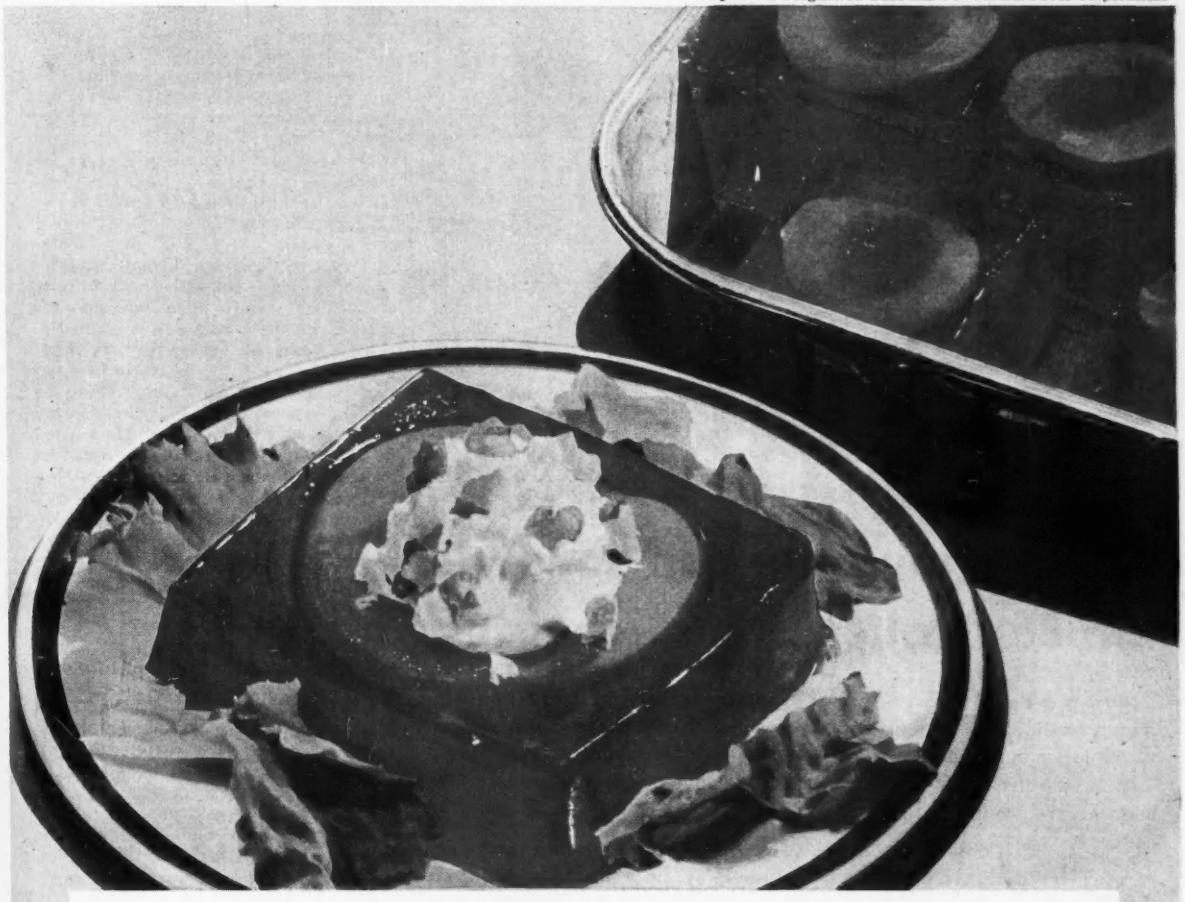


Jell-O Cling Peach Salad

1 pound (2⅓ cups) Strawberry Jell-O (or use Apple Jell-O)
½ teaspoon salt
2½ quarts hot water and peach juice (140°-160°F.)
32 canned Cling Peach halves

1. Dissolve Jell-O and salt in the hot liquid. Chill until slightly thickened.

2. Arrange peaches, cut side up, in shallow pans, allowing one peach half per serving. Turn the slightly thickened Jell-O over peaches. Chill until firm.

3. Cut in squares. Serve on crisp lettuce. Garnish with small scoops of cottage cheese and sprinkling of chopped nuts. Makes 32 portions, 4 ounces each.

Costs about 5 cents a portion. For best results use California Cling Peaches.

been published under the auspices of the National Academy of Sciences—National Research Council, as No. 4 of Series 1—Food Stability, of "Surveys of Progress on Military Subsistence Problems."

This booklet includes presentations on four main topics: "Microbiological Factors Affecting Canned Meats," "Mode and Rate of Heat Transfer in Canned Meats," "Canned Meats of Today," and "Potentialities of New Methods of Manufacture." Included in the section on sanitation problems is a report of the incidence of spoilage organisms in canned meat products manufactured commercially. Under the last section are discussions of dielectric methods of heating to process meat and potentialities of using radiation from fission materials in canning meat.

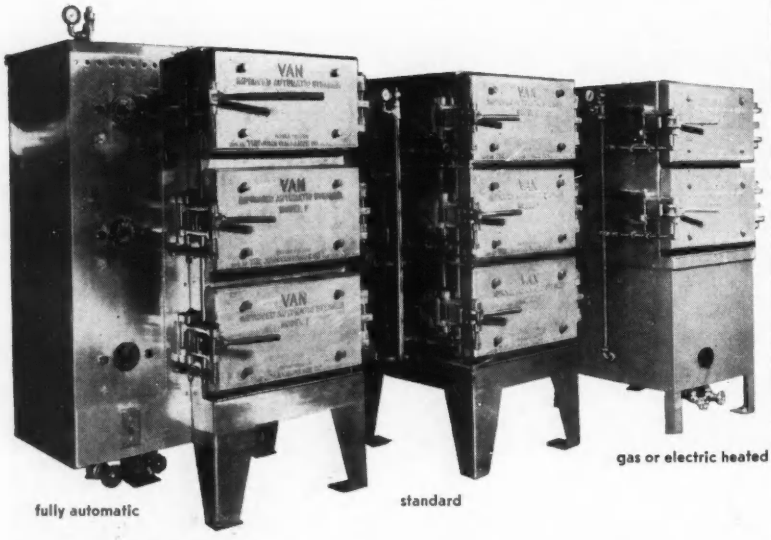
Copies of this report are available at the Quartermaster Food and Container Institute for the Armed Forces, 1819 West Pershing Road, Chicago 9.

Food Composition Table for Colombia. A *Tabla de Composición de Alimentos Colombianos* by Dr. José Gongora y Lopez and Dr. Norton Young Lopez has been issued in Bogotá by the Instituto Nacional de Nutrición. A seventy-nine-page booklet, it presents data according to food groups: milk and milk products; fruits; vegetables and greens; meat, fish, eggs, and legumes; cereals and cereal products; tubers, bananas, and sugars; fats and oils; and miscellaneous. Tabular data are broken down into content per 100 gm. for the following: calories, moisture, protein, fat, carbohydrate, fiber, ash, calcium, phosphorus, iron, vitamin A, thiamine, riboflavin, niacin, and ascorbic acid. With each food group, those foods which are high in one particular nutrient are listed first. The major portion of the figures presented were obtained by analysis of 50,000 different samples of Colombian foods done at the laboratories of the Instituto between 1944 and 1953. A few were taken from the U.S.-D.A. Handbook No. 8.

Fellowships in Statistics. The University of Chicago is again offering $4000 post-doctoral fellowships in statistics. The purpose of these fellowships (which are supported by the Rockefeller Foundation) is to acquaint established research workers in the biologic, physical, and social sciences with the role of statistical analysis in planning experiments and other investigative programs and in the analysis of empirical data. The fellowships are open only to holders of the doctor's degree or its equivalent in research accomplishment. Further information is obtainable from the Committee on Statistics, University of Chicago, Chicago 37.

Tomato Powder. Tomato powder which can be mixed with water to form a delicious tomato juice has been developed by the U.S.D.A.'s Western Regional Research Laboratory, Albany, California. It can also be used in recipes that call for tomato pastes or purées. To make the powder, tomato juice is concentrated and homogenized, then dried in a vacuum chamber. The resulting sponge is pulverized and canned with a desiccant to remove excess moisture. Although powdered juices are bulkier than concentrated juices, they weigh less, keep better at high temperatures because of their extremely low moisture content, and don't need refrigeration. These advantages are expected to appeal to the Armed Forces, where savings in transportation and storage may offset the disadvantages of bulk and higher production costs. Already orange and grapefruit powders, produced by a similar process, are in commerical production in Florida, and it is thought that the tomato-juice powder, too, will soon be produced commercially. Progress is also being made in developing beverage powders from prunes, apples, and pineapples.

Ascorbic Acid in Tomatoes. A study on the ascorbic acid content of tomatoes conducted at the Illinois Agricultural Experiment Station, Urbana, has shown that: (a) tomatoes exposed to direct sunlight are significantly higher in ascorbic acid than shaded fruits, (b) that fruit reaches a peak in ascorbic acid about the middle of the harvesting season, (c) that fruit uppermost on greenhouse plants is highest in ascorbic acid, and (d) that illumination has a cumulative effect on ascorbic acid throughout the green stage of the fruit. This study is reported in "Factors



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Affecting the Content of Ascorbic Acid in Tomatoes" by Hussein H. Hassan and J. P. McCollum, which has been published as Bull. No. 573 of the Illinois Agricultural Experiment Station.

Margaret Elizabeth Hill. The A.D.A. office has been notified of the death of Margaret Elizabeth Hill, for the past two years Chief Dietitian, St. Joseph's Hospital, Orange, California. Prior to her work in California, she had been on the staff at St. Marys Hospital, Rochester, Minnesota, and the College of St. Teresa, Winona, Wisconsin. Miss Hill had been an A.D.A. member since 1949.

News of State Associations

California Dietetic Association. The California Dietetic Association has prepared, as a state project, a recipe booklet on "Low Sodium Recipes." The booklet consists of forty-six recipes for entrées, salads, salad dressings, desserts, breads, and sauces, which may be used by patients at home. The recipes are written in a simple, easy-to-understand form: at the top, the yield is given; then the ingredients are listed in the order they are to be used; and instructions are given below. Variations are also suggested for several of the recipes, and a list of seasonings concludes the compilation.

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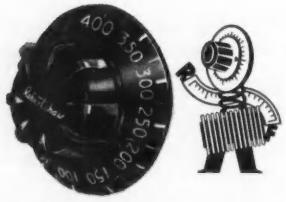

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Hawaii Dietetic Association. Shizuko Miyamoto, Past-President of the Hawaii Dietetic Association, presented leis to outgoing and incoming officers and committee chairmen at the Association's annual dinner meeting on September 22. Marc A. Grugier, Chef of the United Air Lines Flight Kitchen, was the guest speaker. Following his talk on food preparation for the air line, some of the members served as models in a style show which was coordinated and commented on by Elaine North, women's representative of United.

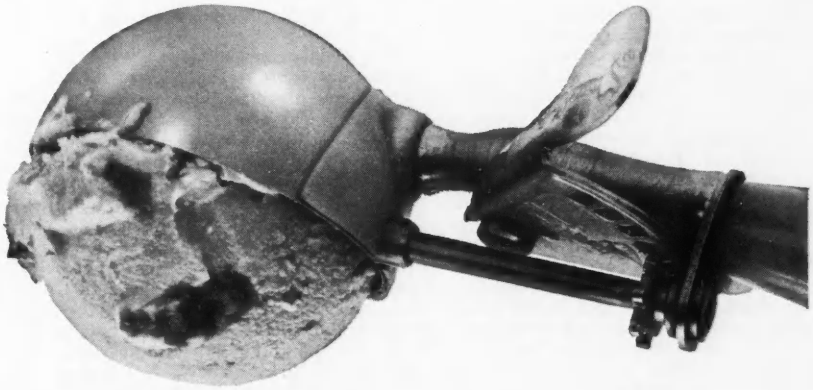
Officers for 1954–55 for the Hawaii Association are: President, Ruth Rummel, Leahi Hospital; President-Elect, Boletha Frojen, University of Hawaii; Secretary, Nobuko Shiraki, Leahi Hospital; and Treasurer, Sayako Oumaye, St. Francis Hospital.

Ohio Dietetic Association. The Executive Board of the Ohio Dietetic Association this year decided to sponsor two exhibits at County Fairs—one in Lucas County (Toledo) in August and the other in Montgomery County (Dayton) in September. "Weight Control" was the theme at both exhibits. Consultant services and literature were provided to those who "weighed in" on the scales provided at the exhibits. Those who attended the Toledo exhibit were given an opportunity to request help in weight control problems, and lists of the requests were sent to the appropriate groups, such as the Toledo Diabetes League and the Red Cross Nutrition Service. Twelve people who attended the exhibit at Dayton signed up for weight control classes which the Montgomery County Nutrition Council began in September.

At the spring meeting of the *Cleveland Dietetic Association*, the members attending provided food for the supper and contributed over fifty favorite recipes used in their respective institutions. A booklet of the recipes was prepared for sale to the members.

The purpose of the *Mahoning Valley* group's spring meeting was to introduce the field of dietetics to high school senior girls planning to attend college. The guest list included twenty students, two home economics teachers, a dean of girls, and a vocational guidance director. On arrival at Youngstown Hospital, each guest was given a booklet containing the recipes for the smorgasbord which was to be served. Following the dinner, a tour of the Dietary Department, the showing of slides of dietitians at work, and talks on the profession of dietetics provided an opportunity for these girls and teachers to get first hand information.

Oklahoma Dietetic Association. The Oklahoma Association, together with the University of Oklahoma, the Oklahoma League for Nursing, the Oklahoma Commission for Crippled Children, and the Oklahoma State Department of Health, sponsored a Pediatric Institute on Nutrition at the University of Oklahoma, May 31 through June 4. Major emphasis was placed on promoting adequate protein



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Because of its high calcium and phosphorus content, ice cream meets specific dietary requirements for the tubercular patient[1] and the pregnant[2] and lactating woman.[3]

An ideal food with which to tempt the older person, ice cream supplies many elements necessary in building resistance to infection[4]—in retaining nutritional status in osteoporosis,[5] in chronic colitis and other gastrointestinal diseases that interfere with digestive processes.[6]

For the pediatric patient, too, ice cream is not only traditional in the post-tonsillectomy period, but is also useful during recovery from poliomyelitis.[7]

Borden's Ice Cream offers the same food values as whole milk, but in different proportions—the same important proteins, minerals, and vitamins. Like other Borden dairy products, Borden's Ice Cream is made from only the finest of fresh milk, homogenized to break down curd size and render it easily digestible. Its high solids content, moreover, assures improved flavor and texture.

And a wide selection of popular flavors is further reason why Borden's Ice Cream is likely to be enjoyed even when the rest of the meal goes untouched. A good reason to include Borden's Ice Cream in the diet—for it has helped solve many a "feeding problem" both in the hospital and out.

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[1]Brewer, W. D., et al: J. Am. Dietet. A. 30:21 [Jan.] 1954. [2]Murphy, G. H., and Wertz, A. W.: J. Am. Dietet. A. 30:34 [Jan.] 1954. [3]Spies, T. D.: J. A. M. A. 153:185 [Sept. 19] 1953. [4]Zeman, F. D., in Stieglitz, E. J.: Geriatric Medicine, ed. 2, Philadelphia, W. B. Saunders Company, 1949, p. 136. [5]Sebrell, W. H., Jr., and Hundley, J. M., in Stieglitz, E. J.: Geriatric Medicine, ed. 3, Philadelphia, J. B. Lippincott Company, 1954, pp. 186-187. [6]Barborka, C. J.: Treatment by Diet, ed. 5, Philadelphia, J. B. Lippincott Company, 1948, pp. 607-608. [7]Seifert, M. H.: J. Am. Dietet. A. 30:671 [July] 1954.

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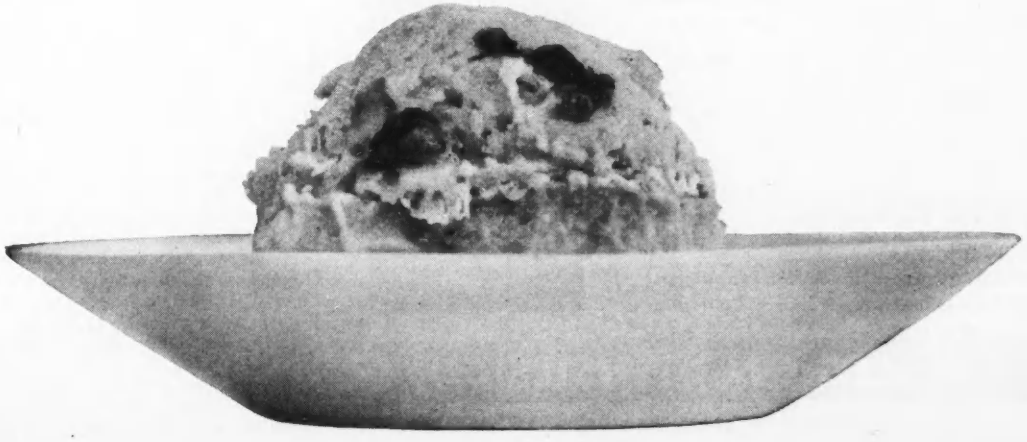

and calcium in American diets. Dr. Genevieve Stearns, Research Professor, and Dr. Robert L. Jackson, Professor of Pediatrics, State University of Iowa, Iowa City, reviewed nutrition studies and shared with participants some of the unpublished data of their studies. Dr. Stearns presented her work in calcium and vitamin D. The five-day institute covered the cycle of growth from infancy through adolescence. Studies in human nutrition during infancy, the preschool, the school, and the adolescent periods of growth were used to point up the needs for better food habits at all ages. Forty-five persons were registered for the complete course, including nurses, dietitians, nutritionists, social workers, and teachers from schools of nursing, public health agencies, and colleges.

Six Oklahoma dietitians served as guest consultants in the fields of nutrition, menu planning, food purchasing, and equipment arrangement and planning at the state's annual summer school lunch workshop during the first two weeks of August.

Pennsylvania Dietetic Association. The *Philadelphia Dietetic Association's* season opened with a fall reunion and dinner at the Friends Hospital in September. The November meeting is to be devoted to community nutrition and will feature a panel discussion on "Nutrition Help to Patients —A Cooperative Effort." Speakers will be Lois Mosca, a dietitian of the VA; Alexander Hersch, a social case worker with the VA; Justine Glassman of the Albert Einstein Medical Center and Margaret C. Kauffman, Visiting Nurse Society of Philadelphia, representing public health nursing; and Arthur J. Browne, Philadelphia County Board of Assistance. Future plans for the Association for the year include: a panel discussion in January on "The Teaching of Nutrition to Medical Students," with Edward Bortz, Lankenau Hospital, as moderator, and medical students as participants; a paper on "Recent Aspects in the Treatment of Diabetes Mellitus" by Dr. Henry F. Page, Lankenau Hospital at the February meeting; and a presentation by Morris Shiffman, Philadelphia Department of Public Health, on "Environmental Sanitation in Philadelphia" in April.

Texas Dietetic Association. Virginia Hlanak has been awarded the Texas Association's first scholarship of $250. Miss Hlanak, who is a senior at the University of Texas majoring in foods and nutrition, will receive her scholarship in two installments; one was paid at the beginning of the fall semester, and the other will be given at the start of the spring term.

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Legion is first with an all stainless steel Vacuum Jug. Lustrous platinum finish and attractive border design.* No liners to replace. Light weight, easy to clean, no breakage. These Legion jugs will maintain liquid temperatures — hot or cold — for hours. Available in 10 oz. and 20 oz. capacities.

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LEGION has the answer in Stainless Steel!

Fully insulated handles — seamless drawn bodies — heavy gauge stainless steel throughout — sanitary perfect pour spouts — double thick extra strong hinges — welded spouts and bases — lustrous platinum finish with attractive border decorations* to supplement the finest china, glass and silver service.

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PIONEERS IN STAINLESS STEEL

News of Products and Services

Gerber's has developed Strained Chicken for babies, which will be put into national distribution shortly. This food combines uniformity and smooth consistency with good taste and high protein value.

Another new product on the market soon will be *Instant Starlac*, developed by The Borden Company. The new product will dissolve instantly, even in ice water. Only a spoon is needed for mixing, rather than an egg beater, as formerly. The new Instant Starlac has a lower moisture content and pours easily. It will be packaged in two consumer sizes—a red package containing three, pre-measured, foil-lined envelopes, each of which makes 1 qt. nonfat milk, and a blue, 1-lb. economy package from which 5 qt. nonfat milk can be reconstituted. Two advertising pieces have also been prepared to introduce Instant Starlac to the consumer. "The Miracle of Milk Magic" is a leaflet outlining its advantages, while a two-color folder presents a dozen recipes, ranging from veal and carrot pie to Sally Lunn and sherbet.

Pfaelzer Brothers, Inc., has announced the appointment of Ruth M. Kahn as Dietetic Consultant. Miss Kahn comes to Pfaelzer after six years as Director of Dietetics at Michael Reese Hospital, Chicago, with previous experience as Chief Dietitian, VA Hospital, Hines, Illinois, and Nutritionist for UNRRA in Germany following the close of World War II. During the war, Miss Kahn was associated with Harding-Williams, being in charge of food service at the Chrysler Corporation's Dodge Plant in

therapeutic nutrition in therapeutic amounts

BY TUBE

BY MOUTH

Now, *even* seriously ill patients can easily be given nutritional support equal to "three square meals a day," dramatically hastening recovery and shortening convalescence.

SUSTAGEN

the complete nutriment for tube and oral feeding

A 24-hour "diet" of 900 Gm. of Sustagen meets or exceeds the therapeutic nutritional recommendations of the Food and Nutrition Board of the National Research Council.*

Calories	3500
Protein	210 Gm.
Fat	30 Gm.
Carbohydrate	600 Gm.
Vitamins and Minerals	
Vitamin A	5000 units
Vitamin D	500 units
Ascorbic acid	300 mg.
Thiamine hydrochloride	10 mg.
Riboflavin	10 mg.
Niacinamide	100 mg.
Calcium pantothenate	40 mg.
Pyridoxine hydrochloride	5 mg.
Choline bitartrate	500 mg.
Folic acid	2.5 mg.
Vitamin B_{12} (crystalline)	4 mcg.
Iron (from ferrous sulfate)	15 mg.
Calcium	6.3 Gm.
Phosphorus	4.5 Gm.
Sodium	1.9 Gm.
Potassium	7 Gm.

Dilution for tube feeding
1 cup Sustagen to 10 oz. water

Dilution for oral feeding
1 cup Sustagen to 8 oz. water

*Therapeutic Nutrition, Publication No. 234, National Research Council.

Reports of steady weight gains with patients fed Sustagen *exclusively* for more than 90 days attest its nutritional completeness.

By tube—

With Mead's Tube Feeding Set, using plastic tubing half the size of the smallest rubber tubing, Sustagen is easily administered without discomfort to your patients. The problems of diarrhea, cramps and nausea so long associated with tube feeding are virtually eliminated with Sustagen.

Sustagen also makes possible more complete nutrition for many patients for whom parenteral alimentation was heretofore the only practical and effective means available.

By mouth—

Sustagen mixes easily with water to make a delicious therapeutic food drink for your patients on liquid or restricted diets, underweight or undernourished persons, and when tube feeding is discontinued.

Available through drug stores in 1-lb. and 2½-lb. cans, and to hospitals in 5-lb. cans.

MEAD JOHNSON & COMPANY, EVANSVILLE, INDIANA, U. S. A.

Chicago. She has also taught nutrition and dietetics at Washington University Medical School, St. Louis.

The Institutional Service Department, Amino Products Division, *International Minerals and Chemical Corporation* has published No. 9 in its quantity cooking series, featuring Ac'cent. This booklet is concerned with vegetable cookery, with recipes for boiled, creamed, buttered, and fried vegetables presented on pages with handy index tabs which can be cut out and inserted in a recipe box. Included are quantity recipes with variety for the following vegetables: onions, beets, carrots, cabbage, spinach, kale, potatoes, corn, peas, celery, and beans.

The *Robertshaw-Fulton Controls Company* has opened a new research center at Irwin, Pennsylvania, where new control devices for home appliances and industry will be developed. The staff of the research center will include engineers, physicists, chemists, technicians, draftsmen, and home economists. The center consists of a laboratory department, an engineering wing, and a home economics department, which is equipped with a model kitchen and laundry including both gas and electric appliances.

Robertshaw-Fulton has also announced the development of a "glamorized" water heater control which is designed to harmonize with the functional lines of the water heater shell. It has a snap-on aluminum cover, available in a wide choice of colors. The temperature dial is of colored plastic with a metallic center disc for the manufacturer's trademark, thus making the control adaptable to any line of water heaters. The control can be installed either externally or completely concealed within the water heater.

The Home Economics Division of the *National Canners Association* has put out a leaflet, "Simplified Recipe Terms for Canned Foods," which will aid those who use canned foods in recipes. Since the container industry uses terms for can sizes which frequently have little meaning to the consumer, this leaflet recommends new simplified terminology in recipes calling for canned foods. The new nomenclature would greatly simplify and clarify recipe writing and understanding. The leaflet contains two tables. One describes the common container sizes and gives the container industry term, the consumer descriptions (approximate net weight shown on labels and the approximate number of cups), and the products usually canned in the sizes mentioned. The second table, presents data on homemakers' choice for sizes of canned vegetables, juices, and fruits.

Universal Foods Corporation has introduced a cream base for use in quantity cooking of cream soups, gravies, sauces, and other creamed dishes. In tests of creamed sauces, the company found that preparing them according to the standard method requires multiple ingredients and ½ hr. of the cook's time for the five steps involved: (a) melting butter, (b) adding flour to the melted butter, (c) pouring milk into separate container and heating, (d) adding heated milk to flour and butter, and (e) stirring constantly for 20 to 30 min. In using the prepared cream base, only two ingredients are needed and only 3 to 5 min. of the cook's time to perform two simple steps: (a) make a paste with cream base and cold water and (b) stir paste into hot water.

The *Market Forge Company* has developed a new pressure cooker with three compartments, all three of which can be used at full capacity at the same time. The compartments are automatically and individually controlled and are designed to use standard cafeteria pans, so that food cooked in the cooker can be placed directly on the serving counter in the same pan. A 2 H.P. boiler in the base of the unit provides steam for immediate cooking pressure. As a safety feature, each compartment has an inside, self-sealing door which cannot be opened under pressure. This cooker is designed to conserve space as well as to provide an attractive streamlined appearance.

The *American Can Company* has developed a container, similar to the company's fiber milk container, for the packaging of fresh whole orange juice. The container, which is the product of months of research, is engineered to withstand the action of fresh citrus juice and the abuse and shocks encountered in transportation to distant markets. The container will provide fresh orange juice with the convenience of a disposable container.

PERMITS KITCHEN-CONTROL OF ALL SERVINGS BY DIETITIAN

NEW! The JARVIS & JARVIS **HEATED TRAY CONVEYOR**

Exact quantity helpings of specific components of individual meals can now be supervised by the dietitian at the point-of-supply, and collectively conveyed to patients to meet dietary instructions. Hot foods stay hot . . . cold dishes stay cool.

Units combine the full capacity equivalent of former models with a new low-height construction for better vision. In addition, extra heavy duty 8" double, ball-bearing J&J casters provide an unprecedented ease of mobility that simplifies control by even the frailest nurse.

AVAILABLE IN TWO STREAMLINED MODELS

No. 1706 — incorporating 4 spacious heated tray compartments and one segregated unheated compartment for salads and desserts.

No. 1705 — includes 4 heated tray compartments without unheated compartment.

Both models feature sturdy drop-type doors with heavy duty oven-type hinges and springs. Precision set doors, when opened, rest at tray level for unobstructed removal of load. Heavy rubber bumper protects complete perimeter of equipment.

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